The

British Medical Journal

The Journal of the British Medical Association.

WITH SUPPLEMENT.

No. 3017. SATURDAY, OCTOBER 26, 1918. Price 1/-

GENERAL LIBRARY
DEC - 3 1918
UNIV. OF MICH.

ARCHIVES OF RADIOLOGY AND ELECTROTHERAPY.

The Official Organ of the British Association of Radiology and Physiotherapy,

Monthly, 3s. 0d. net.

Contents of October Number.

A PORTABLE ROENTGEN-RAY GENERATING OUTFIT. By W. D. COOLIDGE and C. N. MOORE.

THE ELECTRO-PHYSICS OF IONIC MEDICATION. By HAROLD H. U. CROSS, Calif., U.S.A.

SPUR-LIKE FORMATIONS OF BONE FOLLOWING AMPUTATION. By J. D. MORGAN, B.A., M.D., C.M., Major C.A.M.C.

A METHOD OF PREVENTING DUST FROM GETTING BETWEEN THE FLUORESCENT SCREEN AND THE LEAD GLASS. By DUDLEY STONE, Capt. R.A.M.C.

Notes and Abstracts. Correspondence.

Annual Subscription, payable in advance, 30s.

London:

WILLIAM HEINEMANN (Medical Books) Ltd., 20, Bedford Street, W.C. 2.

Second Edition, Enlarged. Crown 8vo, 7s. 6d. net.
With 31 Original Photographs and 150 Special Prescriptions.

TREATMENT OF DISEASES OF THE SKIN.

By KNOWSLEY SIBLEY, M.D.Camb.,
London: EDWARD ARNOLD, 41 & 43, Maddox St. W.

NERVOUS ASTHMA:

Its Pathology and Treatment.

By J. B. BERKART, M.D., late Physician to the City of London Hospital. 2s. 6d. net.

HUMPHREY MILFORD,
OXFORD UNIVERSITY PRESS, Amen Corner, E.C.

Now Ready. Fifth Edition. Pp. xvi. + 340.
With 136 Illustrations. Plain and Coloured.
Price 10s. 6d. net.

LESSONS ON MASSAGE.

By MARGARET D. PALMER,
Formerly Masseuse and Manager of Massage Department, London Hospital.

BAILLIÈRE TINDALL & COX,
8, Henrietta Street, Covent Garden, London, W.C.2.

Now Ready. Tenth Edition. Pp. 200. Price 2s. net.

SYNOPSIS OF THE BRITISH PHARMACOPŒIA.

Containing a Synopsis of the Poison Laws of Great Britain and Ireland.

By H. WIPPELL GADD, F.C.S.

BAILLIÈRE TINDALL & COX,
8, Henrietta Street, Covent Garden, London, W.C.2.

REGISTERED AS A NEWSPAPER.]

J. & A. CHURCHILL'S *New Books.*

Now Ready. New Edition. 25s. net, postage 9d.
2nd Edition. 210 Illustrations, 41 Plates, 4 in colour.

HULL'S SURGERY IN WAR

By Lieut.-Col. A. J. HULL, R.A.M.C., F.R.C.S. Assisted by Lieut.-Col. G. W. CRILE, Col. E. M. PILCHER, C.B., D.S.O., Capt. W. MILLER, C. H. BROWNING, M.D., Capt. A. A. W. PETRIE, Col. O. W. RICHARDS, C.M.G., D.S.O., Major R. H. J. SWAN, and Capt. H. E. H. TRACY.

Now Ready. New Edition. 16s. net, postage 6d.
3rd Edition. 18 Plates, 319 Text Figures.

PARSONS' DISEASES OF THE EYE

Now Ready. New Edition. 18s. net, postage 9d.
7th Edition. With 71 Illustrations.

PHARMACOLOGY & THERAPEUTICS

By ARTHUR R. CUSHNY, M.D., F.R.S.

With 26 Illustrations. 10s. 6d. net, postage 6d.

WAR SURGERY OF THE ABDOMEN

By CUTHBERT WALLACE, C.M.G., F.R.C.S.

"A wide circle of readers will appreciate the labour that has gone to the preparation of this indispensable volume."—BRIT. MED. JOUR.

Vol. I., with 85 Illustrations. 21s. net, postage 6d.
Vol. II., with 11 Plates. 25s. net, postage 9d.

VILLAVECCHIA'S ANALYTICAL CHEMISTRY

including FOOD PRODUCTS

Translated by T. H. POPE, B.Sc., A.C.G.I., F.I.C.

J. & A. CHURCHILL, 7, Great Marlborough St., W. 1.

OXFORD MEDICAL PUBLICATIONS

IN THE PRESS.

THE EARLY TREATMENT OF WAR WOUNDS.

By Colonel H. M. W. GRAY, C.B., C.M.G.,
Crown 8vo. Cloth. Fully Illustrated.

THE ANATOMY OF THE PERIPHERAL NERVES.

By Lieut-Colonel A. M. PATERSON, R.A.M.C.
Demy 8vo. Cloth. Fully Illustrated.

JUST PUBLISHED.

FIELD SANITATION.

By Major R. St. J. MacDONALD, C.A.M.C.
Crown 8vo. Cloth. Illustrated. 6s. net.

GYMNASTIC TREATMENT for JOINT and MUSCLE DISABILITIES.

By Brevet Colonel H. E. DEANE, R.A.M.C.(T.)
Crown 8vo. Cloth. Fully Illustrated. 5s. net.

HENRY FROWDE, HODDER & STOUGHTON,
Oxford Press Warehouse, Falcon Sq., London, E.C. 1.

[COPYRIGHT.]

By W. SAMPSON HANDLEY, M.S., F.R.C.S.

ILEUS DUPLEX.

AN ACCOUNT OF THIS DANGEROUS COMPLICATION OF APPENDICITIS, AND OF ITS TREATMENT.

(Hunterian Lecture, 1915)

With Coloured Plate. 2s. 6d. net.

Bristol: J. WRIGHT & SONS, LTD.
London: SIMPKIN & CO., LTD.

HEALTH RESORTS OF THE BRITISH ISLANDS.

With Maps, Illustrations, and Chapters on Climates, Baths, Sanatoria, &c. Price 5s. net. Postage 6d.

By Many Writers.

Edited by NEVILLE WOOD, M.D., M.R.C.P.

London: HODDER & STOUGHTON.

JUST PUBLISHED.

HYPNOTISM AND TREATMENT BY SUGGESTION.

By Dr. ALBERT E. DAVIS, Hon. Physician to the Liverpool Psycho-Therapeutic Clinic.

Of all Booksellers. Price 2/6 net. Post free 2/9.

"A fascinating book."—*Daily News.*

SIMPKIN, MARSHALL & Co., Ltd.: London.

Now Ready. Pp. xi + 269. With 3 Charts. 5s. net.

ON ALCOHOLISM:

Its Clinical Aspects and Treatment.

BY FRANCIS HARE, M.D.,
Medical Superintendent of the
NORWOOD SANATORIUM,
Beckenham.

"Marked by candour, common sense, and moderation . . . likely to become the standard text-book."—*British Medical Journal.*

London: J. & A. CHURCHILL,
7, Great Marlborough Street, W. 1.

BY C. O. HAWTHORNE, M.D.

STUDIES IN CLINICAL MEDICINE

Price 6s. net.

"A valuable miscellany of clinical studies."—*Edin. Med. Journ.*

"Covers the ground of clinical medicine in an able manner."—*Canada Lancet.*

"Should be in the possession of every general practitioner."—*Prescriber.*

BALE & DANIELSSON, Gt. Titchfield Street, W. 1.

BY LESLIE THORNE THORNE, M.D., B.S., etc.

NAUHEIM TREATMENT

IN ENGLAND OF DISEASES OF THE HEART AND CIRCULATION.

Fifth Edition, Enlarged and re-written, much new matter. Price 5s. net.

Pp. vi. + 160, with 27 Photos of Resistance—Exercises and 65 other Illustrations, Polygraphs, etc.

"It is the best and most practicable work on the subject."—*West London Medical Journal.*

BAILLIÈRE, TINDALL & COX,
8, Henrietta St., Covent Garden, London W.C. 2.

[ISSUED WEEKLY

THE ABSENCE of tyre worry is worth a lot to a busy man, and your car is in every day service under all sorts of road conditions.

So you appreciate the strength which is built into Dunlop tyres when you find they stand the strain of hard wear so well and yet give you the fullest benefit of the pneumatic principle.

Dunlop

DUNLOP RUBBER Co., Ltd.,
Founders of the Pneumatic Tyre Industry,
Para Mills, Aston Cross, Birmingham.
LONDON: 14, Regent Street, S.W.1.
Telephone - 5812 Gerrard (8 lines).

Are YOU employing a disabled man?

Motor Ambulances For HIRE

Silent, Speedy, Reliable.

DAIMLER Ambulances are fully equipped to afford the utmost comfort to the patient, including Stretcher mounted on special springs, Carrying Chair, Air-Bed, Waterproof Sheeting, Washstand (with an ample supply of water) and a fresh supply of linen for each case.

1 Hour up to 10 miles, £1 5s. Full Tariff on Request.

The Daimler Company, Ltd.,
HIRE DEPT.,
Store Street, Tottenham Court Road,
LONDON, W.C.

Daimler

Telephone:
Museum 4160 (4 lines).
Telegrams:
"Daimlerdom, London."

The Harveian Oration
ON THE
DOCTRINE OF CONSUMPTION IN HARVEY'S TIME AND TO-DAY.

Delivered before the Royal College of Physicians of London, October, 1918.

By PERCY KIDD, M.D.Oxon., F.R.C.P.

(*Abstract.*)

Rather more than 300 years ago, in his Lumleian lectures delivered in 1616, William Harvey first made known the results of his experiments on the circulation of the blood, though his complete work was not given to the world until 1628.

In 1656, the year before his own death, Harvey made provision for the annual delivery of an oration to commemorate the benefactors of the College, to exhort the Fellows and Members of the College to search out the secrets of Nature by way of experiment and to continue in mutual love and affection amongst themselves. In his injunction to search out the secrets of Nature by way of experiment, Harvey urges others to follow the practice which, in his hands, had led to such great results. His discovery of the circulation of the blood was founded on experiment and could not have been worked out in any other way. While learned physicians were engaged in subtle metaphysical discussions about disease, Harvey addressed himself to his own experimental work until he felt justified in publishing his revolutionary results.

In his introduction to the treatise on the generation of animals Harvey pours contempt on the exclusive reference in all discussion to the authority of the great men of the past, in these words:

> The method of investigating truth commonly pursued at this time therefore is to be held as erroneous and almost foolish, in which so many inquire what others have said, and omit to ask whether the things themselves be actually so or not.

Yet Harvey was no despiser of the ancients, as his numerous references to Aristotle and Galen attest. At the present day there is no fear of undue respect being paid to the old masters; nay, the young lions of the twentieth century are too well satisfied with their own prowess to devote much thought to an ignorant age that knew nothing of vaccines, blood cultures, test meals, blood counts, and other revelations of these latter days.

We may feel sure that had Harvey lived in these days, when not only the Commonwealth of England but the whole world is full of distractions, he would still have found solace in his studies. What Harvey did we may all do according to our several capacities. Those of us who, from one cause or another, are unable to render direct service to the State can yet help to carry on the civil life of the community which is indispensable to the successful conduct of one of the most righteous wars in which our country has ever been engaged.

It is hardly necessary at the present day to insist on the value of experiment in the elucidation of disease, and Harvey's injunction to search out the secrets of Nature by way of experiments has now lost something of its original point. To-day experiment is in the air. And though much of the laboratory work published appears sterile and inconclusive, all additions to the sum of knowledge, however small and indirect, must have their value. In no disease, perhaps, has the beneficent influence of experiment been more strikingly exemplified than in consumption or tuberculosis. Experiment has been the light that lightened our darkness.

The seventeenth century, with its many wonderful achievements in literature, art, and science, marks the beginning of a new era in the study of consumption. Let us then compare the doctrine of consumption in Harvey's time with that of to-day.

In order to comprehend the state of opinion in Harvey's day we must retrace our steps to the time of Hippocrates, to whom we owe the first recorded account of consumption. Hippocrates defines phthisis as suppuration and ulceration of the lung, and includes under the same head empyema, abscess of the lung, and gangrene. He speaks also of *φῦματα*, swellings or growths in the lung, as causing phthisis. In Latin editions of his works these are translated "tubercula," hence, as Waldenburg points out, it has been thought that Hippocrates was acquainted with tubercles. But Virchow, after a critical examination of the passages in which *φῦματα* are mentioned, came to the conclusion that these were circumscribed abscesses, and not tubercles in the modern sense. These swellings are attributed by Hippocrates to collections of mucus or bile which suppurate, and are described as occurring also in the tonsils and in other parts. The causes of consumption are pneumonia which fails to resolve in a critical manner, spitting of blood, and suppuration in the pleura. Pituitous secretion dropping down from the head and stagnating in the lung is another cause of suppuration and phthisis.

It is an eloquent testimony to the authority of Hippocrates that these views were adopted wholly or in part by every writer of note for the next two thousand years. Celsus added nothing to the account given by Hippocrates. Aretaeus was the first to distinguish phthisis from empyema, but he makes no mention of *φῦματα* or anything resembling tubercles in the lungs. Galen in the main follows Hippocrates. Phthisis is caused by ulceration of the lung. Ulcers of the lung are like ulcers of any other parts, and are due to direct injury, rupture and haemorrhage from strain, and inflammation. Galen speaks of *φῦματα* as inflammatory swellings resembling furuncles and buboes.

One of the earliest references to contagion is believed to be found in these words: "It is dangerous to live with consumptives and with those whose foul breath imparts a heavy odour to the rooms in which they lie." Bulloch and Greenwood point out that Aristotle had expressed similar views concerning contagion.

The Arabian physicians closely followed Hippocrates and Galen, and made no further contribution to the subject. Phthisis remained an ulcer of the lung. The position was unchanged until the seventeenth century.

At this eventful period, when anatomical examination of the dead became more general, medical science began to burst its fetters, and a true renascence of medicine set in. The time which produced Harvey's great work on the circulation witnessed other striking developments of medical knowledge, and this century constitutes one of the great epochs in the study of consumption. Among the writers of this time who dealt with this disease two men stand out pre-eminently—Franciscus Sylvius and Richard Morton.

A glance at the medical works of Sylvius will show how wide was the range of his studies. There were few branches of medicine that he did not touch. Apart from his anatomical work, Sylvius has been chiefly known as the author of a purely chemical theory of disease which had little permanence. Nevertheless these views possess a special interest at the present time, when the importance of physiological and pathological chemistry is fully realized. But in his work on consumption he stands out as one of the pioneers of the seventeenth century, and for this reason alone he would merit imperishable renown. The views of Sylvius on this subject do not appear to have attracted the attention which they deserve.

We see from a study of Sylvius's writings how greatly he was dominated by the influence of Hippocrates. "Phthisis sive ulcus pulmonum" is a phrase he uses more than once. Like all previous writers, he attributes phthisis in most cases to peripneumonia or pleurisy ending in suppuration. But he makes a great advance when he states that tubercles are often seen in the lung in cases of consumption. Still more important is his discovery that tubercles soften and suppurate to form vomicae. In his view, tubercles were nothing more than enlarged glands, which he supposed to exist in the lungs and other parts of the body, the enlargement being due to accumulation of viscid humours or secretions in these glands. The origin of the humours is referred to many causes, acting for the most part through the blood, especially to excess of various secretions such as bile, pancreatic juice, or saliva, also to changes in the thyroid secretion, which, as he supposed, found its way into the trachea.

In his conjectures concerning glands which in the natural state are so small as to be invisible, but when diseased become enlarged and are then seen scattered throughout the viscera and tissues of the body, it is not improbable that he is describing cases of generalized miliary tuberculosis. The assumed glandular origin of tubercles in the lungs suggested a relation to scrofula or

struma in which external glands were enlarged. The action of heredity is exerted through these glandular tubercles.

Varying conditions of humours, or, as we should say, secretions, at different ages are credited with powerful predisposing influence in the causation of phthisis. May there not be some truth in this? The varying activity and mutual relations of internal secretions, about which as yet we possess little accurate knowledge, have profound effects on the human organism, and who shall say that susceptibility to tuberculosis is not in some degree connected with these influences? The phthisical constitution or disposition is also attributed to changes in the humours or secretions of the body.

It seems, then, from the many-sided activities of Sylvius and from his important work on consumption, that Baker is justified in describing him as one of the great original thinkers of the seventeenth century, of the period that produced Harvey, Descartes, Leibnitz, and Malpighi.

Richard Morton was the author of two works, *Puretologia* and *Phthisiologia*, of which the latter alone concerns us now. He defines a consumption of the lungs as

> an universal wasting of the parts of the body, caused by some distemper of the lungs, as a stuffing, swelling, inflammation and ex-ulceration of them, and thereupon it is attended with a cough, difficulty of breathing, and other symptoms of the breast, and accompanied with a fever, which at first is slow and hectical, afterwards inflammatory, and at last putrid and intermitting.

Morton clearly states his opinion that the formation of tubercles constitutes the first stage in the phthisical process. His belief in the great prevalence of tubercle and in the frequency with which spontaneous healing takes place has received striking confirmation in recent times. Morton distinguishes a special scrofulous variety of consumption in which

> the blood by reason of its preternatural acrimony being, as it were coagulated, and so unable perfectly to unite the new Chyle to itself and the solid parts, is wont to throw it in a larger quantity than is convenient upon the glandulous parts . . . and what happens in other glandulous parts happens also in the lungs themselves, which are everywhere full of innumerable glandules, but of some more conspicuous ones, upon the windpipe and the branches of it, though in their natural state they are not so easily discerned: so that 'tis no wonder if those that have the King's Evil, who are frequently subject to glandulous swellings in other parts, are likewise many times affected with such kind of tubercles even in the lungs themselves.

But whether conscious or unconscious of a certain ambiguity in his description of this variety of the disease, he adds that the most certain diagnostic sign of this form "is to be taken from glandulous swellings in the external habit of the body accompanying of it, or at least preceding it." Morton says that this variety of phthisis was the commonest in his experience and furnished most cases of recovery.

In estimating the value of Morton's work we must consider his relation to Sylvius, although he makes no reference to the writings of the latter. The *Opera Medica* of Sylvius were published ten years before the appearance of Morton's *Phthisiologia*, and it is unlikely that Morton was unacquainted with the older work, as the reputation and authority of Sylvius were then so great. Morton adopts Sylvius's view of the glandular origin of tubercles in the most thoroughgoing fashion, and follows him in other points. Sylvius, as we have seen, was far in advance of all previous authors in asserting that tubercles were often found in the lungs of consumptive persons, and in attributing the formation of vomicae to the softening and suppuration of tubercles. Morton went still further and maintained that tubercles were found in the lungs in all cases of consumption, whatever its origin might be. But in the seventeenth century the word tubercle was used in the etymological sense and as yet possessed no specific pathological significance. Both Sylvius and Morton insisted upon the contagious nature of this disease, a view which had long prevailed and seems to have been held by Galen and Aristotle.

Thomas Willis deals very briefly with the subject, but he makes the important observation that the general belief that phthisis is a pining away of the whole body arising from an ulcer in the lung is untrue. In proof of this statement he says that he had opened the dead bodies of men that had died of this disease, in whom the lungs were free from any ulcer, and yet they were set about with tubercles or stones or sandy matter throughout. "Wherefore phthisis is better defined as a withering away of the whole body, arising from an ill formation of the lungs." Waldenburg thinks that Willis may have intended to describe miliary tubercles by the term "sandy material."

Sydenham added nothing fresh to our knowledge of consumption, but he recommended daily riding on horseback as the principal assistant in the cure of this disease.

Bonetus, a contemporary of Sylvius and Willis, in his *Sepulchretum*, gives records of 150 necropsies of consumption from his own experience and from that of others. He regards phthisis as due to many different causes—ulcer of the lung, abscesses, scirrhous tumours, tubercles, vomicae. He speaks of tubercles as tubercula glandulosa, following Sylvius. Vomicae are closed collections of pus which resemble ordinary abscesses, but may be formed from tubercles. He seems to have described miliary tubercles in the following passage: "Pulmonum parenchyma . . . duriusculum erat et multis quasi granulis instar steatomatum quae aliquid sebacei continebant, refertum."

Mangetus, who edited the *Sepulchretum* of Bonetus in 1700, added some further cases of phthisis, among which are included instances of generalized miliary tuberculosis; one case is summed up thus: "Grandines pulmonum aliorumque partium cum phthisi."

Morgagni was so convinced of the contagious nature of consumption that he carefully avoided the dissection of those dead of this complaint. The cases which he describes in his great work *De Sedibus et Causis Morborum* seem to have been drawn from the records of his teacher Valsalva, who held similar views about contagion. Valsalva made the important observation that in all the cases he had dissected the ulcers and disease were in the upper part of the lungs. Morgagni considered that phthisis may be the result of the suppuration of tubercles, but he recognized other causes, and he accepted Morton's opinion concerning the connexion between scrofula and consumption.

Pierre Desault, a physician of Bordeaux, published his views on phthisis in 1733, four years before his death. In this work, which has great merit, he expresses himself very clearly. The causes of phthisis are divided into conjoint and antecedent. The conjoint cause is that whose presence sets up the disease and whose destruction leads to a cure. This cause he refers to as tubercles and concretions found in the substance of the lung and scattered through the different lobes. These concretions resemble hailstones and are of different sizes. From this description it is probable that Desault was acquainted with miliary tubercles.

All previous writers, both ancient and modern, with the exception of Willis, were agreed that the cause of phthisis is an ulcer of the lung. Desault rejects this view, relying on the results of his own experience.

Post-mortem examination of certain cases of phthisis which presented characteristic symptoms during life revealed a complete absence of ulceration, though the lungs were stuffed with tubercles. Phthisis is due to tubercles, ulceration of the lung is a secondary process. The symptoms of the disease precede the occurrence of ulceration and are therefore not due to ulceration, but to tubercles. He compares phthisis with scrofula (*écrouelles*), both of them chronic diseases. Phthisis begins with tubercles or tumours in the lung, scrofula with tumours in the neck. In both cases the tubercles or tumours become inflamed and suppurate. Suppuration of scrofulous tumours leads to the formation of ulcers which are slow to heal and can only be cured by destroying the tumours and the cause which produces them. The same is true of ulcers in the lungs resulting from the suppuration of tubercles. Both diseases in the stage of suppuration are contagious.

Desault believed that the contagion in this case, as in venereal disease, depends on the presence of worms. If we substitute micro-organisms for worms, there would be little to add even now to this statement, and in any case we may fairly credit Desault with a true prophetic instinct. The doctrine of "Phthisis ab Haemoptoe" advocated by Morton and nearly all previous authors is rejected by Desault, who says that this chapter in Morton's book should be headed "Haemoptoe a Phthisi," for haemorrhage is the result, not the cause of phthisis.

Young people between the age of 18 and 35 are most liable to be attacked by phthisis, as Hippocrates pointed out, but other ages are by no means exempt, for one meets with the disease in

persons at ages below and above these limits, though less frequently. The subjects of phthisis for the most part are:

1. Those with contracted alar chests.
2. Those with a phthisical parentage and hereditary disposition.
3. Those exposed to contagion (in which Desault is a firm believer). "Those who live with phthisical patients and wait on them may take the disease, though there be no hereditary disposition, for it is contagious. Thus wives who wait upon their phthisical husbands often contract the disease, and husbands who wait on their phthisical wives."

Desault was an enthusiastic supporter of the treatment of phthisis by horse exercise recommended by Sydenham, and he gives instances of the good results obtained by this means.

Cullen did not make much advance on the views of Sylvius and Morton. Tubercle is the commonest of many causes of consumption. The lung may contain tubercles without any symptoms for a time, but finally the tubercles suppurate and lead to phthisis. Tubercles are small swellings resembling indurated glands. Phthisis is common in persons of scrofulous parentage. Cullen assumes the existence of a disposition to the disease in certain individuals. Some cases that cough up calcareous matter, with or without blood, recover, others die. Asthma frequently terminates in consumption. Cullen did not favour the contagious origin of the disease.

William Stark, who died at the early age of 29, deserves special mention for his excellent work on the morbid anatomy of phthisis. His *Clinical and Anatomical Observations* were not published till 1788, eighteen years after his death. Tubercle is described as follows:

In the cellular substance of the lungs are found roundish firm bodies, named tubercles, of different sizes, from the smallest granule to about half an inch in diameter; the latter often in clusters. The tubercles of a small size are always solid, even those of a large size are frequently so; they are of a whitish colour and of a consistence approaching nearly to the hardness of cartilage; when cut through the surface appears smooth, shining, and uniform. No vesicles, cells, or vessels are to be seen in them, even when examined with a microscope, after injecting the pulmonary artery and vein.

This description shows that he was familiar with miliary tubercles though he does not use that term. He then traces the development of vomicae from tubercles and their communication with the air passages. Near the larger cavities the pulmonary vessels are suddenly contracted and the bronchi are thickened. The upper and posterior parts of the lung are first and most affected. Stark gives what I believe is the first account of an aneurysm of the pulmonary artery, measuring 1 in. by ½ in., opening into a vomica in the lung with a slit on one side of it. The patient died of haemoptysis.

Matthew Baillie, at the end of the eighteenth century, gave an admirable description of tubercles in the lungs to which little has been subsequently added. He believed that tubercles arise in the cellular tissue of the lungs, and are not glandular in origin, as no glands exist in the lungs, "and on the inside of branches of the trachea, when there are follicles, tubercles have never been seen."

Tubercles are at first very small, being not larger than the heads of very small pins, and in this case are frequently accumulated in small clusters. The smaller tubercles of a cluster probably grow together and form one larger tubercle. The most ordinary size of tubercles is about that of a garden pea, but they are subject in this respect to much variety. They adhere closely to the substance of the lungs, have no peculiar covering or capsule, and have little or no vascularity. When cut into, they are found to consist of a white, smooth substance, possessing a firm texture, and they often contain in parts a thick curdy pus. In cutting into the substance of the lungs a number of abscesses is sometimes found, from tubercles of a considerable size having advanced to a state of suppuration. In the interstices between these tubercles the lungs are frequently of a solid texture, from the cells being in a great measure obliterated. The texture of the lungs on many occasions, however, round the boundaries of an abscess, is perfectly natural. . . . When tubercles are converted into abscesses, phthisis pulmonalis is produced, one of the most destructive diseases in this island.

Baillie described tubercles in other organs, but he did not offer any explanation concerning their relation to similar disease of the lung.

The great work of Bayle, in the early part of the last century, marks the commencement of a new era in the conception of phthisis. He divided the disease into several classes—tuberculous, granular, ulcerative, melanotic, calculous and cancerous; of these the tuberculous is the most common. This artificial classification, including tuberculous and non-tuberculous affections, did not long survive. Bayle's description of tubercles does not differ in essentials from that given by Baillie. The smallest tubercles he calls miliary. These are opaque or yellowish, and tend to suppurate and break down to form an ulcer.

Bayle's criterion of tubercle was an opaque or cheesy substance. Tubercle may be encysted on non-encysted, nodular or diffused. What Baillie called scrofulous matter Bayle called tuberculous. Like Baillie, he assumed a close connexion between scrofula and tubercle. In addition to tubercles, certain transparent hard miliary nodules were described in the lungs; these, which he called miliary granulations, were distinguished from miliary tubercles by the fact that they never became opaque or cheesy. From their hardness and translucency Bayle regarded them as of the nature of cartilage. The simultaneous appearance of tubercles in various organs of the body convinced him that the explanation was to be found in a common cause, and he attributed this dissemination to a tendency to the production of tubercles, a tuberculous diathesis or disposition. This diathesis was the common cause of tuberculous phthisis, which is a general disease, and for this condition the term tuberculosis was first employed by Bayle. The conception of a tuberculous diathesis had a profound influence on contemporary thought, and for fifty years after Bayle's death its effects could still be traced in medical literature. It needed the touch of genius to dispel the mists that obscured the relations of phthisis to tubercle, and this was supplied by Laënnec's masterly treatment of the whole subject. Laënnec proclaimed the doctrine of the unity of phthisis. All phthisis is tuberculous.

Tuberculous matter may be developed in the lungs and other organs under two principal forms: that of isolated bodies and that of infiltrations. Whatever be the form under which the tuberculous matter is developed, it presents at first the appearance of a grey and semi-transparent substance, which becomes by degrees yellow, opaque, and very dense. It then softens, gradually acquires a liquidity about equal to that of pus, and, being expelled through the bronchi, it leaves in its place cavities commonly known as ulcers of the lung, and which I shall designate by the name of tuberculous excavations.

He then describes miliary tubercles and Bayle's granulations and shows that transitional forms connect the two, proving that the latter are only an early stage of the former.

There is no other difference between them than that which exists between the green fruit and the ripe. All cheesy matter is tuberculous, even that which is sometimes seen in cancerous growths. Inflammation plays no part in the production of tubercles, which may develop in any organ of the body, and are to be regarded as new formations. Scrofulous glands are tuberculous. Haemoptysis is never the cause of phthisis, but is always the result of disease already established. Tubercle, wherever situated, is connected with a certain disposition, but "the real cause, like that of all diseases, is probably out of our reach."

These views met with strong opposition on the part of some of Laënnec's own countrymen. Thus Broussais, accepting the tuberculous nature of phthisis, regarded tubercle as the result of irritation and inflammation of the lung, pleura, or bronchi, reverting to the standpoint of the seventeenth century, when the Hippocratic tradition still largely prevailed.

Andral took up a somewhat different position. While he embraced the idea of a tuberculous diathesis, he denied that tubercle is a new formation. According to his conception, caseous or tuberculous material represented inspissated secretion in the small bronchi and lung, which gradually becomes more compact and ultimately suppurates. The common causes of phthisis are pneumonia, pleurisy, catarrh, or haemoptysis, occurring in persons with a tuberculous diathesis. He supported Bayle's view that miliary granulations are distinct from miliary tubercles, and considered that they represented discrete areas of alveolar inflammation.

Louis, by his elaborate pathological and clinical observations, gave strong support to Laënnec's views. Rokitansky put forward a theory of a tuberculous crasis, dyscrasia, or blood change depending on a hyperinosis. He regarded scrofula and tuberculosis as identical. In England Laënnec's doctrine in the main was generally adopted.

Until nearly the middle of last century pathological

views were based almost entirely on naked-eye observations. But about this time the microscope began to be employed with important results, and numerous observations were made on the histology of tubercle. Lebert described certain small cells or tubercle corpuscles which were pathognomonic of tuberculous material. Reinhardt disputed the specificity of these cells and showed that similar appearances may be presented by pus corpuscles. William Addison regarded tubercle as consisting of epithelial cells derived from the white corpuscles of the blood.

Virchow, in his great work, *Die Krankhaften Geschwulste*, essayed to revolutionize the whole doctrine of tuberculosis:

> Miliary tubercle is the only criterion of what is tuberculous. Caseation, though a common change in tubercles, is not a specific process; it may occur in new growths and is often the result of inspissated pus. This transformation is a necrobiosis and is allied to other forms of degeneration. In pulmonary phthisis inflammation is the chief factor and may terminate in caseation. . . . Tubercle plays a subordinate part. The cells of tubercle resemble the cells of a lymphatic gland. Tubercle is a heteroplastic lymphoma, its seat is the connective tissues of the body. Scrofula is not a specific disease, but a manifestation of a general vulnerability of tissue and proclivity to disease. Heredity is recognized as a potent factor. What is inherited is a certain disposition or vulnerability, not the disease itself.

Niemeyer applied Virchow's views in their most extreme form to the clinical history of phthisis, which he divided into two groups—miliary tuberculosis and chronic caseous pneumonia.

> Any form of pneumonia may terminate in phthisis, but in most cases it is a chronic catarrhal pneumonia which leads to caseation and excavation. Haemoptysis may set up a caseating pneumonia and is a common cause of phthisis. Miliary tuberculosis is seldom a primary affection of the lung, but is generally secondary to ulcerative pneumonia or to a caseous lymphatic gland. Phthisis is not a specific disease and is not hereditary. A congenital vulnerability and a tendency to a luxuriant growth of cells are the distinguishing marks of this disease, and in this sense there is a connexion between phthisis and scrofula.

This profession of faith, supported by the great authority of Virchow, found much favour in Germany. But in France and England the great majority of physicians held firmly to Laënnec's doctrine of the unity of phthisis.

In 1857, when discussions about tubercle were still chiefly concerned with histological details, Buhl came forward with the important statement that generalized miliary tuberculosis is the expression of an infection of the blood originating in a caseous focus situated in a lymphatic gland, in the lung, or in some other part of the body. This was the first attempt to explain tuberculosis on the basis of infection, and constitutes a landmark in the inquiry.

Seven years later Villemin made known the results of his memorable researches on the experimental production of tuberculosis in animals. Rabbits and guinea-pigs inoculated with miliary tubercle, caseous matter or phthisical sputum, invariably developed tuberculous lesions in the serous membranes, lungs, and other organs. In certain animals, such as dogs, cats, and sheep, inoculation was unsuccessful. Control inoculations with other material, such as cancer or anthrax, invariably failed to produce tuberculosis.

Villemin concluded from his experiments that tuberculosis is a specific inoculable disease, and he compared it with virulent maladies like small-pox, syphilis, and glanders. These conclusions were disputed at first on the ground that tuberculous lesions could be produced experimentally by the injection of non tuberculous material. But, after much controversy, the truth of Villemin's views was universally acknowledged.

In 1867 William Budd, basing his opinion on geographical and epidemiological considerations, enunciated the view that phthisis is a zymotic disease like typhoid fever, and that its propagation is determined by infection. But all doubts as to the infective nature of tuberculosis were removed by Koch's famous announcement in 1882 of his discovery of the tubercle bacillus. The facts concerning Koch's brilliant research, and the overwhelming proofs adduced by him in support of his conclusions are too well known to need recapitulation here. But we may pause a moment to pay homage to the genius of Laënnec, who conceived the doctrine of the unity of phthisis; to Villemin, who supplied the first experimental evidence of the truth of this view, and to Koch, who isolated the infective micro-organism, cultivated it outside the human body, and demonstrated its pathogenic action on the lower animals.

Koch's discovery having furnished the most complete confirmation of Laënnec's doctrine, non-tuberculous caseous pneumonia, which had long figured prominently in German writings, was now given a decent burial. Many elaborate and artificial classifications of phthisis shared the same fate. The old terms "consumption" and "phthisis" began to pass out of use, and "tuberculosis"—a term which we owe to Bayle—was generally adopted. Some of Koch's most enthusiastic supporters were at first prepared to explain everything in the natural history of the disease by infection with the tubercle bacillus, and to throw all ideas of heredity and disposition to the winds. The temperate and judicial statements of Koch himself are in striking contrast with the attitude of these extremists.

In his monograph, *The Etiology of Tuberculosis*, published in 1884, Koch admits that "although a good many of the phenomena classed together under the head of 'predisposition' may be referred to simple and easily explained conditions, some facts still remain difficult or impossible to interpret, compelling us for the present to accept the view of a varying liability." He further agrees that tuberculosis is hereditary in the sense that a predisposition is inherited. Careful statistical investigations by Pearson supply strong confirmation of the existence of an hereditary disposition. This question has been very ably discussed by Bulloch and Greenwood, who concluded that "the many workers who have dealt with the problem of inheritance and infection during the last few years have failed to achieve any real solid advance from the classical position."

In Koch's opinion the main, if not the only, source of pulmonary tuberculosis is the dried sputum of tuberculous patients, which reaches the lungs through the air passages. Villemin had expressed similar views. The aërogenic origin of the disease has been disputed, but the rival view which regards pulmonary tuberculosis as enterogenic has received less support than the former.

The relation of human to bovine tuberculosis had engaged the attention of Villemin, who concluded that the two diseases were different. But Klebs and later workers, including at first Koch himself, regarded them as identical. This was the prevailing view, though doubts were expressed by individual writers, until 1900, when Koch made the startling announcement that further experiments had convinced him that human and bovine tuberculosis are distinct diseases, and that pulmonary tuberculosis is invariably due to infection by bacilli of human origin.

In spite of numerous researches on the alleged morphological and cultural differences exhibited by tubercle bacilli of the human and bovine type, no general agreement has been reached. But that there is a difference in the pathogenic effects on animals there seems to be no doubt. Inoculation of bovine bacilli is followed by an acute general tuberculosis, whereas when human bacilli are employed the effects are limited to a local tuberculosis at the site of inoculation, or to a comparatively mild and chronic form of infection. In 1903 Behring proclaimed the opinion that infection of infants by the milk of tuberculous cows is the chief source of pulmonary tuberculosis. Further investigation, however, has confirmed the truth of Koch's view that pulmonary tuberculosis is invariably due to infection with tubercle bacilli of the human type. This question has been fully discussed by Bulloch in his Horace Dobell lecture delivered before the College in 1911.

Records of autopsies at hospitals show that in a large percentage of all dead bodies—70 to 90 per cent.—arrested tuberculous lesions are found in the lungs or other organs. It is clear, therefore, that the number of persons that recover from the infection greatly exceeds the number of those that succumb. Man is evidently more resistant to tuberculosis than the ordinary laboratory animals, though less so than animals like the cat, dog, sheep, horse, and ass. Koch has pointed out that in the human subject a temporary immunity is often manifested, periods of partial or apparently complete recovery alternating with phases of active infection.

There seem then to be intermediate grades of immunity in man contrasting with the complete immunity of certain animals. By analogy we may infer that these different grades of immunity in man and the lower animals depend on defensive arrangements which are similar in kind and

vary only in degree. We can hardly doubt that the explanation of these differences is to be found in biochemical variations at present imperfectly understood.

Hereditary disposition may be explained on similar lines. These considerations illustrate the importance of the part played by the soil in which the germ of tuberculosis is planted. This fact had not escaped the acute observation of Villemin, who insisted on the interdependence of two factors in tuberculosis—the virus and the "*milieu organique.*"

A further study of the soil or "*milieu organique*" is the most pressing need for the better understanding of the pathology of tuberculous infection. This inquiry is intimately connected with the explanation of immunity, a subject bristling with difficulties. In recent controversies concerning the relative importance of phagocytosis and chemical action of the body fluids we seem to witness a renewal of the old contest between the cellular and humoral pathologists. But in spite of the immense amount of research devoted to the study of immunity no general conclusion has yet been reached. This need not surprise us in view of the complexity of the problems involved.

When the infectious nature of the disease had been finally established by Koch, great results were anticipated from the application of this knowledge to the prevention of tuberculosis. But, so far, the results have been disappointing.

The death-rate from phthisis had been steadily falling for a number of years before the discovery of the tubercle bacillus, and no accelerated reduction has taken place in recent years. Furthermore, since the Great War began in 1914, there has been a steady rise in the phthisis death-rate, the causes of which have yet to be worked out. A recent paper by Brownlee on the epidemiology of phthisis pulmonalis, based on statistical tables of the death-rates at different ages in different districts, raises points of great interest. His conclusion is that there are at least two types of phthisis: one especially affecting young adults, and one middle age. The type affecting middle age seems to have been the chief type in London for more than 200 years. Sydenham's statement that the usual age at which death from phthisis occurs is between 15 and 30 is taken directly from Hippocrates.

When Morton, who gives the actual ages of phthisis deaths, is consulted, it is found that a very large proportion of cases are over the age of 30. Further, investigation has shown that the young adult type, which is the prevailing one in Ireland and Shetland, spreads independently of environment, being as common in the more healthy parts of a district as in the unhealthy, while the amount of middle age phthisis is correlated to the unhealthiness of a district.

The explanation suggested is that phthisis is not one disease, but a mixture of at least two allied diseases, an explanation to which the recent discoveries regarding typhoid fever furnish an analogy. In one form of phthisis the chief death-rate occurs between the ages of 20 and 30 years, in a second form the maximum death-rate occurs between the ages of 45 and 50 years. This hypothesis does not, in the present form, explain the occurrence of phthisis at high ages observed in Wales and Cornwall. It is possible that the senile form is due to the same organisms as that which causes the young adult type. It is well known clinically that many persons develop phthisical lesions in their youth which apparently heal, while later in life a recurrence of the disease or a new infection leads quickly to a fatal issue. No district by itself gave any clue to the meaning of the phenomenon of phthisis at the later age observed in Wales and Cornwall. Light on this type was obtained from the statistics showing the susceptibility to phthisis in different occupations. It was found from these data that a very marked susceptibility to phthisis at later ages was shown by coal miners, though the total amount of phthisis occurring among them was very small.

A study of the phthisis death-rate in England generally during the last sixty years shows a great reduction at all ages. This is most marked at the age period 20 to 25 years. At the middle and later ages the fall has not been nearly so marked. The result has been to raise the mean age at which death from phthisis occurs. No completely satisfactory explanation of this fact is possible at present. The figures available suggest that an epidemic of "young adult" phthisis culminated about the middle of last century, since which date that form of the disease has markedly diminished. It is to be hoped that further investigations on these lines will enable Brownlee to clear up some of the questions raised in his valuable paper.

If we look back and review the progress of knowledge we see how Laënnec's great generalization was foreshadowed by the work of Richard Morton. For Morton was the first to point out that consumption is in all cases associated with the presence of tubercles in the lungs. Thomas Willis had previously broken away from the Hippocratic tradition that phthisis and ulceration of the lung are convertible terms.

Sylvius, their great contemporary, whose influence must have powerfully affected both Willis and Morton, had not taken up such a definite position himself, though, as already shown, he had made important contributions to the pathology of consumption. His views on the fluctuating activity of the humours or secretions of the body, and their relation to consumption, find their counterpart, at the present time, in the temporary immunity which Koch discerns in the course of many cases of tuberculosis. The mutual relations of the different humours or secretions advocated by Sylvius, and the modern development of the doctrine of the endocrine glands, provide another illustration of the well known fact that no great discovery is made without some previous preparatory work. Again, though the conception of tuberculosis as an infection first took definite shape in consequence of the experimental work of Villemin, we know that a belief in the contagiousness of consumption can be traced back as far as the time of Galen and Aristotle.

Let us not forget the debt we owe to the ancients. "Vixere fortes ante Agamemnona multi." How true was Elijah's outburst—"I am not better than my fathers."

THE ADVANTAGES OF INTRAMUSCULAR INJECTIONS OF SOLUBLE CINCHONINE SALTS IN SEVERE MALARIAL INFECTIONS.

By Sir LEONARD ROGERS, Kt., M.D., F.R.C.P., F.R.S., I.M.S.,
PROFESSOR OF PATHOLOGY, CALCUTTA.

Medical men practising in highly malarious countries find that severe plasmodial infections constitute an important cause of death, but one which is entirely preventable by early recognition and active treatment. In the most severe infections quinine by the mouth may be powerless to avert a fatal issue, as in cases reported by me last year in this Journal[1] in a paper on the suitability of soluble salts of quinine and cinchonine for intravenous injection. I have for long advocated the prompt intravenous injection of soluble quinine salts in such dangerous cases, and in the paper referred to I advised the acid hydrobromide as the least toxic salt for this purpose. Captain R. Knowles, I.M.S., has since confirmed my conclusions, and reported prompt and favourable results from its use in the severe and dangerous bilious remittent malaria met with in Assam, in some of which quinine by the mouth could not be retained, and the patients' lives were in danger.[2]

The disadvantages of the intravenous method, especially in tropical countries with few highly trained medical men, are, first, that many doctors are insufficiently acquainted with the simple technique of giving intravenous injections, so the measure is liable to be postponed until too late; and secondly, unless the injections are given very slowly, it is possible to cause sudden death of the patient by the full doses of 10 to 15 grains of the drug required in the severe infections under consideration. The latter danger can be averted by injecting very slowly, or by dividing the dose into two equal parts with an hour or more between the two injections.

In my former paper I pointed out that cinchonine bihydrochloride and cinchonine acid hydrobromide intravenously in rabbits are very slightly less toxic than the corresponding quinine salts, while they are even more soluble than the latter, and I suggested that they would be worth trying intravenously in malaria. MacGilchrist[3] found that the sulphate of cinchonine orally was slightly more efficient in malaria than the sulphate of quinine, but

the former has the disadvantage of being more irritant to the gastro-intestinal mucous membrane.

During the past year I have made a number of trials of cinchonine salts in malaria by the intravenous, intramuscular, and subcutaneous routes and have carried out some further experimental researches, with the results to be very briefly reported in this communication. I found the two cinchonine salts already mentioned to be practically painless by intramuscular and subcutaneous injection and to be rapidly absorbed, as shown by cinchonism being produced by full doses of 15 grains within one or two hours and the early appearance of the alkaloid in the form of quinine in the urine. I was therefore led to think that these cinchonine salts might be more suitable for intramuscular injection than the corresponding quinine ones; for it has been repeatedly demonstrated that even the most soluble quinine salts are largely precipitated in the muscles, from which much of the original dose can be recovered unabsorbed after considerable intervals even running into several days.

Experiments to ascertain the Rapidity and Completeness of the Absorption from Muscle of Quinine and Cinchonine Bihydrochloride respectively.

For this purpose 0.2 gram doses of each salt were injected into separate rabbits of approximately equal weight. Three pairs of animals were used, and they were chloroformed and killed after twelve, twenty-four, and seventy-two hours respectively, and analyses were very kindly made for me by Kerner's elaborate but accurate method by Assistant-Surgeon Madan Mohan Dutta, Demonstrator of Physiology, Calcutta Medical College, to whom I am greatly indebted. I also desire to express my great obligation to Mr. E. G. Shaw, B.Sc., for very kindly making the two cinchonine salts for me at the Government quinine factory in the Darjeeling Hills.

The results of the experiments are shown in Table I, which gives the amount of quinine recovered (1) from the muscle at the site of injection, showing the amount of unabsorbed precipitated alkaloid; and (2) from the organs, especially the brain, liver, kidneys, spleen, and adrenals, showing the amount absorbed and present in the tissues of the body at the different periods of time after the injections.

TABLE I.

	Quinine Bihydrochloride.		Cinchonine Bihydrochloride.	
	Muscle (unabsorbed).	Organs (absorbed).	Muscle (unabsorbed).	Organs (absorbed).
After 12 hours...	80 mg.	30 mg.	40 mg.	88 mg.
After 24 hours...	65 ,,	26 ,,	30 ,,	65 ,,
After 72 hours...	28 ,,	8 ,,	10 ,,	2 ,,

The figures in Table I are very striking and clearly show the much greater rapidity and completeness of the absorption of the cinchonine as compared with the quinine salt. Thus in the pair of animals killed twelve hours after the injection 88 mg. of absorbed alkaloid were recovered from the organs in the case of the cinchonine salt, as compared with only 30 mg. in the quinine animal, showing approximately three times as great absorption in the practically important first twelve hours. On the other hand, 80 mg. of the precipitated quinine was recovered from the muscle after twelve hours, as against 40 mg. of precipitated alkaloid in the cinchonine animal. At the end of twenty-four hours 65 mg. were recovered locally from the quinine animal against only 30 mg. from the cinchonine one, while 65 mg. were recovered from the organs of the cinchonine animal (where the alkaloid would come into contact with the malarial parasites) against 26 mg. in the quinine one. At the end of seventy-two hours the organs only showed 2 and 8 mg. respectively, showing that absorption must have now nearly ceased, and most of the drug had already been eliminated from the body, presumably through the kidneys. The injected muscle now showed no less than 28 mg. of precipitated quinine still remaining in it, against only 10 mg. of alkaloid in the cinchonine animal, thus indicating that the absorption of the cinchonine salt was much more complete at the end of three days than of the quinine one. This fact, taken with the three times as rapid absorption during the first twelve hours of the cinchonine bihydrochloride, indicates that the latter is far superior to quinine bihydrochloride when given by the intramuscular route with a view to rapid absorption and action in a severe malarial infection. Dr. M. M. Dutta, on examining microscopically the muscles at the site of the injection, found signs of necrosis of the tissues in the quinine but not in the cinchonine animal.

The clinical effect on the animals was even more striking, for whereas the animals injected with the quinine salts appeared to suffer from no definite symptoms of poisoning, the cinchonine animals, on the other hand, became so violently convulsed within half an hour of the injection that I was surprised that they survived, indicating very rapid absorption of the drug, a relatively very large dose having purposely been given. In this connexion it is interesting to note that MacGilchrist found the subcutaneous minimal lethal doses in guinea-pigs of quinine sulphate and cinchonine sulphate respectively to be 0.525 and 0.425 gram per kilo, whereas I found the soluble cinchonine salts to be very slightly less toxic intravenously in rabbits and pigeons than the corresponding quinine ones. The more rapid absorption of cinchonine salts from the tissues above shown explains the differences noted.

Clinical Experience of Intravenous, Intramuscular, and Subcutaneous Injections of Soluble Cinchonine Salts.

Exigencies of space will only permit of a very brief summary of the main points brought out by an analysis of my clinical experience with injections of cinchonine salts. The acid hydrobromide has been mainly used for intravenous and the bihydrochloride for intramuscular and subcutaneous injections. The most important practical points are the rapidity with which the fever and the parasites respectively disappear, while the time of relapses after from one to four injections has also been worked out in most of the cases. I am much indebted to Assistant-Surgeon Jogesh N. Mukherji, M.B., for kind help in examining daily blood films from most of the cases.

By each method of injecting the cinchonine salts rapid disappearance of both the fever and of the parasites from the peripheral blood was obtained in all three varieties of malaria. An examination of the records does not reveal any differences in the effects obtained by the various methods of administering the drugs, which is what might be expected in view of the rapid absorption of intramuscular injections of cinchonine salts already demonstrated, and also apparently of the subcutaneous doses as judged by the early appearance of cinchonism in the patients after full doses. In Table II I have given the time of cessation of the fever and of the disappearance of the malarial parasites from the blood respectively for each type of malaria treated by injections of soluble cinchonine salts. As the effects are more rapid in benign tertian and quartan cases than in malignant tertian, the combined figures of the two former are also shown for comparison with those of the last named more resistant variety.

TABLE II.—*Day of Cessation of Fever and Disappearance of Parasites after Cinchonine Injections.*

Fever.	Fever Disappeared in			Parasites Disappeared in		
	24 hrs.	48 hrs.	72 hrs.	24 hrs.	48 hrs.	72 hrs.
Benign tertian	5	—	1	3	2	—
Quartan	3	2	—	3	2	—
Benign tertian and quartan	8	2	1	6	4	—
Malignant tertian ...	4	4	2	3	3	2
Totals	12	6	3	9	7	2

The data in Table II may be briefly summarized by saying that in the benign tertian and quartan cases the parasites always disappeared in one or two days, and in all but one the fever ceased within the same time, and in the remaining one within three days. In the maligunant tertian variety the parasites generally disappeared within two days and always within three, and

the fever ceased within the same period of time. The immediate results of the injection of the cinchonine salts were thus very satisfactory, and will be found to compare favourably, especially as regards the more serious malignant tertian variety, with those of administering quinine by various methods in the army in England as reported by J. W. W. Stephens and his colleagues.[4]

With regard to relapses the patients could not be kept in hospital long enough to furnish complete data. Four were discharged free from relapses on from the fifth to the twenty-fourth day, while in other cases after from one to four injections relapses were recorded from between the sixth to the thirty-third days, very much in the same way as in the army cases after similar quinine treatment. I did not use the cinchonine salts with the object of or expectation of preventing relapses by a few injections, but in order to rapidly control the fever and cause the parasites to disappear from the blood, after which a prolonged course of oral administration of quinine is indicated to prevent a recurrence of the fever.

The following recent case will serve to illustrate the value of preliminary intramuscular injections of cinchonine salts in cases of malaria in which oral administration cannot safely or conveniently be relied on.

A lady consulted me for what was obviously a benign tertian malaria, from which she had suffered on and off for over a year. Recently the attacks had become more frequent and severe, and she had to go to bed every other day during them; while, when she took quinine, she vomited, and it failed to control the fever. The blood showed benign tertian parasites in every field of an oil immersion lens, indicating a severe infection, not without danger if unchecked. I injected 7½ grains of cinchonine bihydrochloride into the deltoid muscle on the day before an attack was due, and warned the patient that this could not be expected to stop completely the attack due the next day. Twenty-four hours later she felt quite well, and her blood was quite free from parasites, and, as a matter of fact, she had no attack. Three more 10-grain doses were given at daily intervals, after which she could take quinine by the mouth without trouble. On inquiry regarding the amount of discomfort after the injections, she said it was so little that she could with difficulty locate the spot the day after the injection. There was some cinchonism after the 10-grain doses.

Conclusion.

Cinchonine bihydrochloride in a 1 in 2 solution carefully sterilized in an autoclave is so rapidly absorbed that I consider it to be almost as quick and effective in its action in severe malaria as quinine or cinchonine salts intravenously, without the inconveniences and possible dangers of the latter, although in such rare extreme infections as that which I reported last year[5] intravenous injections are advisable. In severe cases of malaria and during the prevalence of pernicious cases, as well as in patients who vomit orally administered quinine, I suggest the further trial of intramuscular injections of 7½, 10, and in adult males up to 15 grains of cinchonine bihydrochloride (or in less severe cases, if preferred, the cinchonine acid hydrobromide, which produces less cinchonism) during the first few days of an attack of malaria, to rapidly control the fever and the infection, to be followed by a full course of quinine orally to prevent relapses.

References.

[1] British Medical Journal, September 22nd, 1917. [2] *Ind. Journ. Med. Research*, January, 1918, p. 463. [3] Ibid., vol. 3, No. 1, p. 1, 1915. [4] *Ann. Trop. Med. and Parasit.*, vol. xi. [5] *Ind. Med. Gaz.*, November, 1917, p. 385.

EPIDEMIC ENCEPHALITIS.*

BY

ARTHUR J. HALL, M.D., F.R.C.P.,

PROFESSOR OF MEDICINE, UNIVERSITY OF SHEFFIELD.

In the early part of the year an epidemic appeared in this country. Its nature was from the first somewhat obscure. Those who saw the earlier cases were faced with a similar difficulty to that which faced the courtiers in the story of Cinderella. They could not find amongst the diseases of their acquaintance a foot which would go into this newly found glass slipper. A search was therefore made amongst diseases which, so to say, did not move in Court circles, and were not personally known to the seekers. Amongst these it was at first thought that the owner of the slipper had been found, and that her name was Botulism. After many painstaking efforts to force her foot into the slipper, it was found to be impossible, and the attempt was abandoned. Botulism was not Cinderella.

The botulism episode is, however, not without its bearing on this discussion. It emphasizes the inability of early observers to recognize in this epidemic a familiar known disease, and it reminds us of a fact which cannot be entirely ignored—namely, the alteration in quantity and quality of our foodstuffs under the present war conditions.

In dealing with the clinical aspects of the epidemic I propose to give an account of my own experiences rather than to attempt a review of the epidemic as a whole from the incomplete data as yet at our disposal. From the cases I have had the privilege of seeing in other districts, and from the excellent records which have appeared in the press, I think that the epidemic as seen in Sheffield and district may be taken as a fair sample of the whole. In one respect this is not true—there was not one fatal case throughout.

Sixteen undoubted cases came under my immediate observation. One of these was under my colleague Major Yates, in the Royal Infirmary. Besides these cases I have heard of some half-dozen other undoubted cases in the area, and I am satisfied that there have been several mild or abortive cases which passed unrecognized at the time.

List of Cases.

No., Sex, Age.	Date of Onset.	Lethargy.	Asthenia.	Ophthalmoplegia.	Paralysis Seventh Nerve.		Fever.	Remarks.
	1918.				R.	L.		
1. M. 15	?Mar. 7	+	+++	+	−	−	?	Myasthenia gravis-like.
2. F. 23	Mar. 11	++	++	++	+	+	++	Like tuberculous meningitis.
3. F. 26	Mar. 17	−	−	−	++	++	−	
4. M. 26	Mar. 17	++	++	++	+	−	++	Like tuberculous meningitis.
5. M. 37	Mar. 25	+++	+++	++	+	+	+	Polyneuritic symptoms.
6. F. 56	Mar. 21	−	++	−	+	−	?	Severe tremor; Parkinson mask.
7. F. 70	Mar. 30	++	+++	+	−	−	−	Sudden onset, like stroke.
8. F. 17	?Mar. 7	++	++	++	−	−	?	Meningitis suspected.
9. M. 55	Mar. 25	++	++	+	+	−	+	Speech hurried.
10. F. 9	Mar. 31	+++	++	+	−	−	++	Katatonia, type of Batten and Still.
11. F. 16	Mar. 29	+++	++	+	−	−	+	Slept 48 hours on end.
12. M. 50	Apr. 15	+++	++	++	+	−	+	Very ill whilst in hospital.
13. F. 65	Apr. 16	+++	++	++	+	−	++	Left ptosis for a long time.
14. M. 12	May 2	++	++	++	−	+	+	Considerable delirium.
15. F. 5	May 13	+++	++	++	−	−	++	
16. M. 44	May 1	?	+++	+	+	−	+	Polyneuritic symptoms.

+, Present; ++, marked; +++, very marked; −, absent.

The cases included persons of each decade up to seventy years. Only two were under ten. The sexes were about equally represented. The epidemic began early in March, and was practically over by the end of April.

Mode of Onset.

This varied considerably. In most of the cases the date of onset could be fixed quite easily. In five the onset was sudden, in the rest it may be described as gradual.

Symptoms and Signs.

The three cardinal signs in a typical case are lethargy, general asthenia, and cranial nerve palsies. From the combination of these three a clinical picture arises which is characteristic. It is difficult to say to which of the cardinal signs the picture is due, but as a rule it is chiefly to the asthenia and lethargy. The clinical picture, as a whole, is one of immobility. In my early paper I used the expression, "lying like a log." The attitude in bed suggests an effigy on a tomb; the immobile head and face a mask. This mask-like appearance is increased where there is facial diplegia, but a definite facial palsy is not necessary to produce it.

*Contribution to a discussion at the Royal Society of Medicine on October 22nd.

One or even two of the three cardinal signs may be slight or absent. In the first case that I saw lethargy was not present to any extent. The boy had been rather drowsy at first, but when I saw him three weeks after the onset it had passed off entirely. In spite of that the general asthenia was so extreme that he gave a typical picture of immobility, and at the time reminded me of myasthenia gravis. The actual cranial palsies were only slight and limited to a slight ophthalmoplegia. When watching me or answering questions the head was kept perfectly still. He could barely move his arms or legs from the bed. He could not turn over in bed. I could not form any opinion as to what he was suffering from, and admitted him to hospital for observation.

Curiously enough, another of my early cases (No. 3) had only one of the three cardinal signs. She was a young married woman. On March 17th she had pain over the left eye, and within twenty-four hours had an almost complete facial diplegia. There was no lethargy or asthenia throughout. In a sense her face was also like a mask, but it was a different mask.

At the time that I saw these two cases there was no knowledge of an epidemic in the district and I did not in any way connect them together. Meanwhile, one of our hospital nurses (Case 2), was in my wards, suffering from what appeared to be tuberculous meningitis, and within the same week I saw, in consultation, a youth (Case 4), in whom I made the same diagnosis. Both these cases had stupor, with intervals of delirium, pyrexia, and cranial palsies. Both were wanting in various important points of diagnosis. When, however, the nurse developed facial diplegia, it struck me that it was rather extraordinary to see two facial diplegias in a week. When, further, the nurse began to recover instead of dying, and I was informed that the youth had similarly deceived our expectations, I began to suspect that there might be some connexion between all four cases. From that time onwards the cases followed one another so quickly that the existence of a local epidemic of some kind became certain.

I have recalled these early personal experiences in order to emphasize what I think is of importance—namely, that the three cardinal signs must be considered as a whole in considering the clinical entity of these cases. Any one of them may predominate, or may be slight or absent. In most cases the cranial nerve palsies form but a small part of the whole symptom-complex.

Prodromal Period.

In most cases there is a distinct interval between onset of illness and appearance of characteristic symptoms. This varies rather widely. It is often difficult to fix exactly. In most cases one must be content with "a short time" or "a few days." I have referred to the four cases in which the onset was sudden, and the prodromal period less than one day. In three cases with rather long prodromal periods the patients were under observation throughout.

Of these the hospital nurse (Case 2) began with severe neuralgia of the right side of the face on March 11th. On the 19th there was vertigo and tinnitus on the left. On the 21st some stiffness of the right face, but no paralysis was noticed. She remained on duty until the 22nd, when the vertigo and tinnitus became much more severe. Temperature 103.2°. She was admitted to the ward as a patient. Lethargy was noticed on the 23rd and meningitis suspected on the 25th. Actual facial deplegia was not noticed until the 26th, but from her own account it is evident that it was beginning on the 21st. Her prodromal period was not less than ten days.

Case 4 called at his doctor's surgery on March 17th, complaining of vertigo. He received some medicine and was able to go about until the 27th, when he became drowsy and took to bed. Delirium began on the night of the 29th, and on the next day he had unequal pupils, strabismus, right facial palsy. Temperature 101°. Here again the prodromal period was not less than ten days.

Similar variations in the length of the prodromal period have, I believe, been observed in the epidemic as a whole. Speaking generally, it is usually a few days, say one to four or five.

The onset of the cardinal signs may be sudden, but it is usually ingravescent. This is particularly true of the cranial palsies. They take some time to develop fully, and may vary in amount and extent from day to day. The general asthenia tends to make the facial palsies less obvious than usual.

Ophthalmoplegias.

Strabismus of variable extent, inequality of pupils, and nystagmus were commonly present. The last named was sometimes of an irregular inco-ordinate kind.

Fever.

This was noted in many cases. Possibly it was present in all, but of that there is no proof. Sometimes it was severe and prolonged, as in Case 2, the nurse, in whom it lasted till the fifth week. On the other hand, in Case 5, a soldier who was in hospital for gas poisoning when the encephalitis began, it never rose above 99°, and that only on the first and eighth days. Yet his attack was severe and very prolonged.

Lethargy.

This was, perhaps, the most striking feature of most of the cases. It was not true sleep. Often the patient was surprisingly awake to what was going on. Many patients who were stuporose all day became delirious at night, returning to stupor next day. Sometimes the delirium was of a foolish kind, and suggested hysteria. One of my cases, a girl aged 9, showed the type of stupor, with katatonia, described by Batten and Still.

Tremors.

In one case (No. 6), a woman aged 56, tremors with asthenia were the chief symptoms. When I saw her the tremor had almost gone, after lasting several days. Only the asthenia, and the face like that of paralysis agitans, remained.

Speech.

During the lethargic period this was often affected. The words were imperfectly muttered, as though it were too much trouble to speak at all. In one case (No. 9), a middle-aged man, there was a distinct hurried or festinating speech, such as is sometimes observed in cases of paralysis agitans.

Results.

All the sixteen cases are still alive. Within the last few days I have seen most of them, and where that has been impossible I have received reports from their medical men. I have divided them into three groups, as follows:

Group A. Recovery complete and absolute. Seven cases (Nos. 1, 3, 4, 6, 12, 13, 14).

Group B. Recovery practically complete. Some slight trace of illness left behind. Six cases (Nos. 2, 8, 9, 10, 11, 15).

Group C. Recovery incomplete. Three cases (Nos. 5, 7, 16).

Group B.

Case 2.—The nurse is back at duty. She feels perfectly well. When tired there is slight left facial paresis, with unequal pupils and slight diplopia.

Case 8.—This woman is at work. Slight photophobia and headache.

Case 9.—This man is at work. His wife says he has changed mentally since his illness. I have reason to think that this dates from an earlier period.

Case 10.—This child is at school again. She has developed a nervous shrugging of the shoulders. Osler has, I think, observed a similar sequela.

Case 11.—A girl of 16. The doctor reports that there is marked ptosis of the right eye, some strabismus and diplopia.

Case 15.—This little child of 5 is in excellent health. She still has a very slight strabismus. The doctor who sends me the report underlines "very."

Group C.

These three cases are, after six months, still far from complete recovery. It is worth noting that in each case the present incapacity is due to the trunk and limb muscles generally, and that the cranial palsies have disappeared completely, or almost so.

Case 7.—The old lady of 70 began rather suddenly, with general weakness and tingling in the hands and feet. Lethargy was pronounced, ocular palsies slight. Her doctor reports that she is still very weak, and that she tires very quickly after the slightest muscular effort. The eye symptoms have disappeared.

Case 5.—The soldier with gas poisoning. From the first his asthenia was profound, lethargy deep and prolonged, cranial palsies multiple and bilateral. From the first he complained of numbness and tingling in the hands and feet, and in the

latter there was impaired sensation up to the knees. His knee-jerks were absent. His progress has been very slow, and at the present time he is unable to sit up without support. There is foot-drop on both sides; some oedema of the feet. He is improving daily; the knee-jerks have returned. All his trunk and leg muscles react to faradism. Above the waist he has recovered completely.

Case 16 (Major Yates's case).—This patient is at present in a very similar condition to the preceding. He still has some nystagmus, right facial paresis. There is weakness in both arms, the left more than the right, but it does not prevent him from using them fairly well. He can walk by himself, but there is double foot-drop and a stepping gait. The knee jerks are still absent, and the muscles are generally flabby and wasted. The muscles below the knees do not respond to faradism, with the exception of the peronei in the right leg.

I do not propose to refer in detail to the results of a very large number of examinations of cerebro-spinal fluids, bloods, excreta, etc., which were made by my colleague Professor Douglas from these cases. But I should like to express my thanks for his valued help on the pathological side, and for his extensive investigations of various food-stuffs during the Botuline era.

Conclusions.

The points for discussion may be summed up as follows: Is this, or is it not, an epidemic of poliomyelitis? If it is not, then it may be either an entirely new disease, or one that until recent times has not been observed in epidemic form.

The clinical resemblances, such as there are, between these cases and poliomyelitis were recognized from the first. In my paper I called attention to the absence of cases of "localized limb paralysis commonly seen in acute poliomyelitis."

The clinical differences, however, have been so recently stated by Kinnier Wilson with such clearness that I need not do more than mention them. Lethargy and asthenia, so severe and prolonged in most of the cases of encephalitis, are not recorded as occurring in typical cases of poliomyelitis, either sporadic or epidemic.

I cannot think that any one would consider the term "sleeping sickness" descriptive of poliomyelitis in general and yet it would not be an inappropriate name for this epidemic. In fact, if one takes away the palsies from these cases of encephalitis, little remains which is common to them and to poliomyelitis. Even the palsies present striking differences in the two diseases in their mode of onset, situation, and results.

In poliomyelitis the onset tends to be rapid and maximal; the regions affected are usually those innervated from the spinal cord; the distribution often unilateral. They frequently leave permanent residual effects of greater or less extent in the area first attacked. In the recent epidemic, the paralyses are typically of gradual ingravescent onset; they almost always affect regions innervated by cranial nerves, and are often bilateral. So far as our evidence goes at present, they usually leave no permanent residual effects in the area first affected.

We know that many nerve poisons, for example, diphtheria, *B. botulinus*, lead, alcohol, etc., show a peculiar predilection for certain particular parts of the nervous system. In these cases of epidemic encephalitis there seems to be such a definite selective action at work.

It has been said that the commonly held view of poliomyelitis as essentially a cord disease is based too much on sporadic cases, and that in its epidemic form it is characterized by the multiformity of sites affected. This line of argument rather accentuates the clinical difference between poliomyelitis and the cases in the recent epidemic. The latter were notable for the uniformity of the sites affected.

As regards the possibility of this being an old disease which has only recently been recorded in epidemic form I have no proofs to bring forward. We know that a similar epidemic appeared about the same time of year in 1917, as recorded by Economo in Vienna, and that Netter has recorded similar cases in Paris. Possibly, in the course of time, records of sporadic cases of a similar type may be found stowed away in the pigeon-holes of other disease—poliomyelitis, influenza, etc.—where they have been regarded as abnormal or exceptional varieties. Such a line of inquiry seems worth consideration. Not until these alternatives have been set aside can we speak of it as a new disease; and, in any case, the final decision must rest with the pathologist.

QUININE PROPHYLAXIS IN MALARIA.

BY

G. WAUGH SCOTT, M.B.,

ESTATES MEDICAL OFFICER, SUNGEI SIPUT, N., PERAK, FEDERATED MALAY STATES.

The importance of arriving at some definite conclusion as to the usefulness, or otherwise, of routine quinine giving as a preventive of malaria requires no emphasizing. The strictures of Dr. Treadgold, in the BRITISH MEDICAL JOURNAL of May 11th, 1918, are thoroughly deserved.

The opportunity of making controlled experiments on the subject must have occurred times innumerable, yet the whole literature of the subject provides hardly anything worth the name of statistics. The reason for this is, partly, the apathy which attacks Europeans in the tropics, and from which medical men are by no means immune. It is, however, much more largely to be accounted for by the preconceptions and prejudices of those in official positions who are able to impose their will over large areas; the effect is very often to inhibit useful research activity. It is one of the dangers that will have to be guarded against in the schemes now proposed to establish a national medical service.

The following experiment will be better understood if I give a short explanation of the two categories of rubber estate labour with which it deals.

Tappers are those coolies whose work consists in paring off the thin shaving of bark from the tree, and so starting the flow of latex from which rubber is produced. His day's work consists in carrying out this operation on from 300 to 400 trees each morning, and collecting the resultant latex in two buckets which he then carries to the factory. It is light work, and the tapper is usually finished for the day by noon, having begun from 5.30 to 6 a.m. Weeders are all the rest of the labour force; the name explains their chief duty, but they are used in many other ways, for road and drain making, pruning, attending to pests, diseases, etc. On the whole their work is harder, and their day is from 6 a.m. till 2 p.m. Among the weeders there is a much higher proportion of women and children, and elderly coolies, than amongst tappers, who are chiefly men from 15 to 40 years of age.

It will be noted that the tapping force is that on which the daily output directly depends, and its maintenance at full strength is one of the chief cares of the management. The experiment here recorded owed its inception to the anxiety of the manager to keep his tapping force up to strength.

It was decided to give each tapper 10 gr. of quinine each day at the factory. It was given when the man brought in his latex pails, so that the giving was rigorously performed. This was maintained for the whole of the year 1917, and during that same period no prophylactic quinine was issued to the weeding coolies.

The following figures give the result stated in percentage per month admissions to hospital:

	Tappers.	Weeders.
Average monthly labour force of each class	140.83	252 03
Average number of cases per month admitted to hospital for malaria	20.16 = 14.31% per month	33.25 = 13.19% per month.

When it is remembered that the tappers are of superior physique, better paid and have lighter work, it must be admitted that all the valuable quinine which has been swallowed by this large number of men during a whole year gave no protection whatsoever against malaria.

This report entirely relates to Indian Tamils, both tappers and weeders being of this race, and both living under identical conditions and in the same sets of buildings.

THE alliance between Columbia University and the Presbyterian Hospital, New York, which was made in 1911 with the object of forming a great medical centre in that city, has been dissolved. The university was unable to get the money needed for its share of the buildings and rejected the plans proposed as the condition of an endowment offered by the Rockefeller Foundation.

THE UNRELIABILITY OF SULPHUR FOR THE DESTRUCTION OF LICE IN CLOTHING.

By A. BACOT,

ENTOMOLOGIST TO THE LISTER INSTITUTE OF PREVENTIVE MEDICINE.

THE trials forming the basis of this note were undertaken at the request of Admiral Henderson, of the Metropolitan Asylums Board, with a view to testing the efficiency of a process of fumigation as applied in the London Borough casual wards. Since the experiments aimed at showing the results of the method as normally employed, and were in no way directed to prove that "sulphur vapour" will, under certain conditions, destroy lice, no efforts were made to produce an unusually high concentration of gas.

I wish to acknowledge my indebtedness to Captain J. T. Grant, R.A.M.C., for his assistance and collaboration in regard to the preliminary arrangement and conduct of these trials, and to Mr. J. B. Reid, superintendent of the St. Pancras Casual Ward, for his co-operation, and the care with which he conducted the exposures on the lines normally worked. In publishing these results my desire is to bring to the notice of the medical officers of health and sanitary officials throughout the country the unreliability of the use of sulphur for the purpose in question under the method employed.

Fumigation Chamber.

The fumigation chamber in which the trials were conducted has a cubic capacity of 294 ft. (7 ft. long, 6 ft. wide, and 7 ft. high). The floor is concrete, the walls brick, and the ceiling wood covered with zinc. The chamber is entirely without ventilation, there being neither window nor chimney, so that there is no passage for the escape of the gas generated when the door is closed.

Method of Use.

After the infested clothing has been hung in the chamber two pails are placed on the floor, one containing boiling water and the other, put close to it, a shovel full of live fire, on which 1 lb. of sulphur is placed. The door is then closed, and the clothes are left exposed to the vapour given off by the boiling water and sulphur until next morning—the usual period being about nine hours. In the trials as recorded below the normal procedure for the use of the chamber in practice was followed. In addition the temperature was taken with a registering thermometer placed in one or other corner of the chamber at the level of one or more of the pockets in which the lice and nits were exposed.

Lice and nits on small slips of army shirt flannel were placed in small pockets of khaki cloth made by folding a slip over and stitching the edges together, the idea being to afford the insects and their eggs as much protection as they could attain by crawling into the complex seams situated at the fork of trousers, or the junction of sleeves with the body of a tunic or coat. Each pocket contained 100 to 300 nits, and in all but the fifth trial 10 to 12 active lice as well. In each of the five trials five pockets were used, four being exposed in the chamber, the fifth being used as a control. Particular care was taken to ensure that nits of all ages, from those freshly laid to those about to hatch, were present. After exposure a careful examination was made in respect of the active lice. The nits were transferred to small card boxes placed in a bag suspended between shirt and skin, so as to give them as natural a condition as possible during incubation.

Details of Experiments.

First Trial.—Pockets 1, 2, 3, 4 were exposed at the height of 2, 3, 4, and 5 feet from the floor respectively; temperature 92° F.; period nine hours. In all four pockets the lice and nits were killed. In pocket No. 5 (control) the lice were living and the nits hatched freely.

Second Trial.—Exposure at 2 ft. from the floor; temperature 92° F.; period nine hours. In none of the four pockets were the lice killed. Nits hatched freely; over 100 were counted in most cases before they were placed in the stock boxes as normal hatchers. In the control pocket the lice were living and the nits hatched normally.

Third Trial.—Exposure at 3 ft. from the floor; temperature 90° F.; period nine hours. In none of the four pockets were the lice killed. Hatching was somewhat delayed in relation to the controls, but the young lice emerged in large numbers; it is doubtful if the exposure to the vapour caused any mortality at all. In the control pocket also the lice were not killed; the nits hatched normally.

Fourth Trial.—Four pockets were exposed at 4 ft. from the floor; temperature 88° F.; period nine hours. (Pocket No. 1 was left open; there was no control pocket.) Some active lice survived in each pocket, but others were killed. The nits hatched very freely; a few of the recently laid eggs failed to hatch, presumably owing to the exposure, but the bulk hatched normally.

Fifth Trial.—Exposure at 3 ft. from the floor; temperature 95° F.; period nine hours. (In this trial all the pockets were left unstitched along one side and during the exposure they were held open by a small piece of wood.) In pockets 1, 2, 3, there were no active lice present; the great majority of the nits were killed, but a few—two or three—hatched in each pocket. In the control pocket no active lice were present; nits hatched normally.

Comments.

No definite reason can be adduced for the success of the first trial in contrast to the failure of the subsequent ones. Previous experiments have shown that in cases where "sulphur vapour" is effective a few nits may hatch at a somewhat later date than the unexposed eggs of the control. The suggestion obtained from the evidence is that this may result because eggs at a certain age (stage of development) are relatively immune as compared with others. It is not feasible, however, to explain diverging results of such magnitude as the above in such a way. It is more reasonable to suppose that, owing to some variation in the heat of the live coal, the sulphur burned more rapidly in the first trial and so produced a higher concentration of gas, for it seems possible, if not probable, that quick combustion is more effective than slow combustion continued over a longer period.

The opening of the pockets in the fifth series of trials was carried out in deference to a criticism to the effect that the method of protecting the nits and lice by one thickness of khaki cloth was too severe a test. It is probable that the largely increased success attained in these trials was due, in part at any rate, to the fuller exposure. As, however, nits are frequently laid in the seams at the fork or armpit, in some of which they will get protection even if others gape as a result of the clothing being turned inside out, reliance upon any process which depends for its success upon the full exposure of all the nits is to be deprecated.

I suggest reliance upon heat wherever possible for the destruction of insect vermin, half an hour's exposure to a temperature of 55° C. being amply sufficient with either dry or moist heat, provided the clothing or other articles are suspended, and not bundled.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF PNEUMONIA.

AFTER reading the two articles in the JOURNAL of October 19th, pp. 427–8, on the treatment of lobar pneumonia, I feel impelled to write this note.

Some six or eight years ago I read a letter in the JOURNAL in which the writer stated that, although he had treated a large number of cases of pneumonia, he had not had a single death for something like ten years. He gave a prescription of the medicine he employed, which I reproduce at the end of this letter.

My partner (Dr. Gerrard) and I adopted this method of treatment at the time, and, with one exception, have not had a fatal case. The man who died—for reasons which it is unnecessary to state—was not given this particular treatment. Over and over again we have been amazed at the results obtained. I cannot do better than give a brief outline of the last case I have had, which is typical of a large number.

On the forenoon of September 23rd I was called in to see a sailor, aged 20, home on leave, having just returned with a convoy from America. I was told he had had a rigor on the previous afternoon, a restless night, and had been slightly delirious.

I found him suffering from acute lobar pneumonia, as evidenced by frequent cough, slightly blood-stained sputum, and well marked crepitation over a pretty extensive area at the base of the left lung. Temperature 104°, pulse and respiration I do not remember. He began to take the medicine about 4 p.m.

that afternoon. He had a better night, and was more comfortable on the morning of September 24th, when the temperature was 101° F. The patient slept all the next night, and on September 25th the temperature was normal. No further rise of temperature occurred, and he became quite comfortable, and took food well.

A peculiar feature in the cases thus treated is that, although the affected lung undergoes the same changes as in an ordinary case of pneumonia, the cough disappears after a day or two, and there is very little expectoration.

I have long thought it my duty again to call the attention of the profession to this method of treatment, but I have hesitated, as I felt it was open to the charge of being empirical. This may be so, but are not many of our methods empirical? I have in my mind the treatment of syphilis by mercury as being somewhat analogous. Mercury was found valuable in the treatment of syphilis long before anything was known of the *Spirochaeta pallida*, and may it not be that one of these drugs or the combination of them acts upon the pneumococcus in much the same way? However that may be, my sole object in writing is to ask my brother practitioners to give this method of treatment a trial. I feel sure they will not be disappointed, and many valuable lives will be saved. The prescription is:

℞ Creosoti	℥	ss
Potass. iodidi	ʒ	j
Sp. vini rect.	ʒ	ij
Ext. glycyrrhiza liq.	ʒ	iij
Aq. ... ... ad	℥	vj

Sig. One tablespoonful every three hours until the temperature becomes normal.

Note.—Dissolve the creosote in the spirit and add the water by degrees, shaking frequently.

Oldham. E. W. Martland.

DEFLUVIUM CAPILLORUM AFTER INFLUENZA.

By this term is meant a thinning of the hair, which usually comes away in great abundance on combing.

It is a daily occurrence at present to see cases of defluvium capillorum in the out-patient clinic. The cases are nearly all young women who give a history of influenza two to three months previously. Very often they bring an alarming bunch of hair in their pocket so that the physician may be duly impressed with the seriousness of the complaint. The hairs themselves appear to be healthy, except that the hair bulbs are more or less atrophied, owing no doubt to defective nutrition of the hair follicles. The scalp in most cases appears to be quite healthy.

On careful inquiry into the cases it is impossible to obtain any general symptom common amongst the cases, nor does the attack of influenza itself appear to have been specially severe. Though the women are very anxious concerning their loss of hair I am certain that they are not all of the nervous temperament, and when they are reassured as to the prognosis the nervousness in great part disappears.

Defluvium is well known in other infections, but I am unable to find any reference to influenza as a specified cause of the complaint. The time of occurrence I would definitely put down as two to three months after the influenza—at least this is the time they seek advice. There has not been the same prevalence of the complaint amongst men, but this may be due to the more easy way in which the adult male looks at extra loss of hair. The prognosis in these cases of defluvium is good and the treatment is more constitutional than local.

General tonics may be administered, and locally either a stimulating lotion or a sulphur ointment if there is any seborrhoea—but this is not a common accompaniment—may be used. Constitutional treatment is the more important.

Robert Gibson, M.D.,
Honorary Dermatologist, Salford Royal Hospital, Medical Officer, Manchester and Salford Skin Hospital.

THE USE OF SALICIN IN INFLUENZA.

I should like to add my testimony to Mr. E. B. Turner's advocacy of salicin in influenza. I have used it now for thirty years and am a firm believer in it. I commenced to treat influenza with salicylates, but came to the conclusion that the heart's action was liable to be unduly depressed thereby; possibly also the sodium salicylate of that period was not so pure. Since then I have given salicin, after commencing with a dose of aspirin to lessen pain and help the skin to act (although not quite so heroically as Mr. E. B. Turner). The cases of pneumonia which I have seen appear to be of a most virulent type, frequently accompanied by the expectoration of almost pure blood and sometimes by diarrhoea. I believe a streptococcus has been isolated. In the recent summer epidemic, which was of a much milder type, I was much puzzled by six cases that developed a general rash at first typical of scarlet fever, accompanied by sore throat, febrile temperature, and vomiting. Three of these were sent from the Royal National Orthopaedic Hospital to an isolation hospital and kept under observation for some weeks. The rashes were eventually accompanied by more irritation than is usual in scarlet fever and subsequently developed a coarser nature. Later, I had little doubt that they were caused by salicin, which may have contained some impurity, and this was the opinion of the medical superintendent of the isolation hospital.

Reginald Pollard, M.B., D.P.H.,
M.O. in charge Lady Evelyn Mason's Hospital for Officers, and of medical cases Royal National Orthopaedic Hospital.

EXOPHTHALMIC GOITRE IN A GIRL.

In February, 1918, a girl then aged 11 years became ill with sore throat and articular pains, from which she recovered; her mother states that since this illness she has noticed the child's neck becoming larger and that the eyes were becoming very prominent. The patient was admitted to hospital on August 3rd (her twelfth birthday was July 4th). She then presented the usual signs of a well-marked case of Graves's disease; there was pronounced exophthalmos with a well-marked von Graefe's sign, considerable enlargement of the thyroid gland, and a thrill which could be felt all over the gland. There was tachycardia (pulse 128), the usual flush of the skin, the sensation of heat, and other typical signs. The patient during the past two months has been kept at rest in bed and has had *x*-ray treatment once a week. The exophthalmos is less, the pulse-rate is on the average 96, and she is much quieter. An interesting point is that the blood count showed 33 per cent. of lymphocytes.

Dr. Hector Mackenzie, in *Allbutt's System of Medicine*, says: "I have not observed a case under 12 years of age," but adds that Buschan in his series mentions fifteen cases under 10 years old.

I am indebted to Sir Clifford Allbutt for permission to publish this case.

C. Wyndham Gittens,
Cambridge. M.R.C.S.Eng., L.R.C.P.Lond.

Rebiews.

WOUNDS OF THE SPINAL CORD.

In the comparatively new field of war neurology few subjects are more important and give greater scope for research and observation than injuries of the spinal cord and cauda equina, which Roussy and Lhermitte[1] describe in a recent volume of the Collection Horizon, introduced by a preface from the pen of Professor Pierre Marie. Complete and incomplete division of the spinal cord is first dealt with, and it is interesting to compare these sections with the observations of Drs. Henry Head and G. Riddoch on the automatic bladder, mass-reflex, and other phenomena in cases of division of the spinal cord, which were contemporaneous and independent (vide British Medical Journal, 1918, i, 457). In the section on incomplete division of the cord, which is commoner than complete division, Roussy and Lhermitte give an account of the various forms of Brown-Séquard's well known syndrome, the imperfect being more often seen than the typical condition. There is a good account of the naked eye and microscopical changes in the spinal cord, with satisfactory illustrations. The subject of spinal shock has

[1] *Les blessures de la moelle et de la queue de cheval.* Par G. Roussy et J. Lhermitte. Préface du Professor Pierre-Marie. Collection Horizon. Paris: Masson et Cie. 1918. (Cr. 8vo, pp. viii + 202; 8 plates and 12 figures. Fr.4.)

of course become much more prominent during the war, and is divided into direct, in which the spine or the surrounding soft parts are injured, and the rare indirect cases due to the atmospheric changes caused by shell explosions, which, however, are more apparently than really different from the direct cases.

The clinical and pathological aspects of traumatic lesions of the cauda equina are systematically described and illustrated by diagrams. The work as a whole is clear, succinct, based on much personal experience, and admirably fulfils its purpose.

GUY'S HOSPITAL REPORTS.

HOSPITAL reports have rather altered of late years owing to a falling off in the number of articles which make their sole appearance before the somewhat restricted audience of the subscribers. The new volume of the *Guy's Hospital Reports*[2] now shows this tendency, as two of the papers of considerable interest, those of Sir F. Taylor on "Some acute abdominal pains which do not require operation," and of "The compluetic (Wassermann) reaction in amentia," by Dr. H. F. Stephens, have been previously published. In discussing gastric crises Sir F. Taylor mentions that he has seen lying in three beds at the same time patients with early tabes dorsalis, all of whom had been operated upon, and later on describes the acute abdominal pain that precedes diabetic coma. As England to-day is at war for justice and fair play, and especially for Belgium, and as the proper name for the Wassermann reaction is the "Bordet-Gengou phenomenon in syphilis," Dr. Stephens has coined the simpler term "compluetic" from the words complement and luetic.

Of the articles on professional subjects that have not appeared elsewhere special attention may be called to two on morbid anatomy—namely, Dr. G. W. Nicholson's original and well-illustrated account of multiple mesodermal mixed tumours of the uterus associated with pleuricentric carcinomata, and to Dr. Gordon Goodhart's article on adenoma of the choroid plexus. In his paper on the experimental production of tuberculous peritonitis in guinea-pigs previously exposed to *x* rays Dr. McGrath confirms the results of Morton of New York; the destruction of the lymphocytes diminishes the animal's power of resistance and so shortens the period taken by inoculation with tuberculous material to give a positive result, thus providing a rapid and sure method of diagnosing the tuberculous nature of an effusion of doubtful origin obtained from a patient.

Guy's Hospital Reports have in the past contained many admirable biographies of past members of the staff, and in the present volume those of the late Sir Henry Howes and Dr. Peter Horrocks by Sir Frederick Taylor worthily continue this tradition. The unsigned *In memoriam* of the late Dr. W. A. Brailey conveys a sharply-cut impression of indomitable and quiet industry.

EXPERIMENTAL HYGIENE FOR SCHOOLS.

THE book, *Simple Experimental Hygiene, Physiology, and Infant Management*,[3] by Miss K. M. CURWEN, may be commended to the attention of school teachers, for whose use it has been written. The experience the authoress has gained as Lady Welfare Superintendent of the Midland Railway Company, as head mistress of a girls' school in Egypt, and as Inspector and Lecturer for the Education Committees of the West Riding of Yorkshire and of Staffordshire, rendered her exceptionally fitted for the task, and she possesses not only knowledge but common sense. The style of the little book is happy, and Miss Curwen manages to make the dry bones live.

The book is divided into parts, dealing with the body, food and clothing, the house, and the care of infants, with a section on vaccination and the prevention of consumption. The appendix contains brief instructions clearly expressed as to the conduct of the necessary and simple experiments detailed in the text. A brief bibliography is followed by an index. At the head of each chapter is a list of the apparatus necessary for the performance of the experiments that illustrate it, and at the end of each is what the authoress calls a "blackboard summary." It might perhaps be well to give these summaries a more permanent form; they might be printed in black and red and be hung round the schoolroom or classroom.

One of the characteristics of the book is that the scientific truths are taught with so great a charm and in so simple a manner that the interest of pupils and teachers will be secured and the impression made will be deep and lasting. If any fault is to be found with Miss Curwen it is that she has entirely ignored the function of reproduction, an omission which will perhaps be remedied in a future edition. The book is well printed on good paper, and among more than one hundred illustrations there is not one that is not clear, readily understandable, and thoroughly explained. It would make an excellent textbook on physiology and hygiene for elementary and preparatory schools, and we commend it to the attention of the Education Department.

NOTES ON BOOKS.

AMONG Sir WILLIAM OSLER'S delightful addresses none is more suitably reprinted in these days of uncertainty as to the future than *A Way of Life*,[4] originally delivered in 1913 before the students at Yale and published in that year. Its burden is to live for the day's work only and to take no thought for the morrow; in other words, life in day-tight compartments. This has been the author's habit of life since he accidentally came on Carlyle's dictum, "Our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand." As the Regius Professor points out, the chief worries of life arise from the foolish habit of looking before and after. He gives in kindly language wholesome advice as to the means of maintaining a healthy mind in a sound body, and insists on the importance of temperance in alcohol and tobacco, and on the value of steady, not feverish, work.

The Ship Captain's Medical Guide[5] has for many years proved a valuable friend to officers of the mercantile marine service, and it is sanctioned by the Board of Trade as a statutory addition to the official medicine chest which shipowners are required to provide for "every ship navigating between the United Kingdom and any place out of the same." The foundations of the work were originally laid by the late Dr. Leach, physician to the Dreadnought Seamen's Hospital, and a number of improvements were made later by Dr. Spooner, formerly senior medical officer of the Board of Trade. In 1912 it was enlarged, revised, and brought up to date by Dr. CHARLES BURLAND, and in that form some 15,000 copies passed into circulation. During the course of the war many of these books have been destroyed with the ships containing them, and a reprint has now been called for. The handbook is officially issued as a book of instructions for dispensing the medicines and medical stores kept on board ship, and the details of treatment are necessarily of a simple kind, such as can be safely carried out by the intelligent layman. A prefatory leaflet to the present edition directs the special attention of shipmasters and all concerned with the health of ships' companies to the section dealing with infectious diseases, which, owing to war conditions, are likely to be prevalent and to lead to trouble and difficulty on board.

When the householder has been up and down the house turning off gas taps and electric light switches, and has settled himself in front of five small cinders and three large fire bricks, to compare the week's meter readings with the mathematical formulae of the local fuel overseer, he may be glad to have at his elbow a copy of Mr. ARTHUR H. BARKER'S pamphlet on *Fuel Economy in Cooking Apparatus*.[6] The lectures, originally given at University College, London, discuss the theory and practice of fuel saving from the standpoint of an expert in domestic engineering. His condemnation of the ordinary kitchen range and gas cooker is absolute.

---

[2] *Guy's Hospital Reports.* Edited by F. J. Steward, M.S., and Herbert French, M.D. Vol. lxix, 1918, pp. 277; 7 plates. London: J. and A. Churchill. (6s. to subscribers, 10s 6d. to non-subscribers.)

[3] *Simple Experimental Hygiene, Physiology, and Infant Management.* For the use of school teachers. By K. M. Curwen. London: C. Griffin and Co., Ltd. 1918. (Post 8vo, pp. x + 353; 113 figures. 6s. net.)

[4] *A Way of Life.* By William Osler. London: Constable and Co. 1918. (Pp. 62. Price 7d. net.)

[5] *The Ship Captain's Medical Guide.* Edited by C. Burland, M.D., F.R.G.S., Senior Medical Inspector of the Board of Trade. London: His Majesty's Stationery Office. 1918. (Cr. 8vo, pp. 81; 32 figures. 2s. net.)

[6] *Fuel Economy in Cooking Apparatus.* By Arthur H. Barker, B.A., B.Sc., Lecturer in Heating and Ventilating Engineering, University College. London: *The Builder*, Ltd., 4, Catherine Street, Aldwych, W.C.2. (1s. 6d. net.)

THE FUTURE OF GENERAL PRACTICE.*

BY

JAMES NEAL, M.R.C.S., L.R.C.P.,

DEPUTY MEDICAL SECRETARY, BRITISH MEDICAL ASSOCIATION.

WHEN war broke out in 1914 the medical profession suddenly found itself faced with entirely new problems. It is not surprising, therefore, that interest in many of the questions which had previously occupied our attention appeared temporarily to subside. The immediate mobilization of the medical officers of the Territorial Force, the enrolment of thousands of civilian practitioners as temporary commissioned officers of the R.A.M.C., and the urgent need for the provision of some arrangements for the medical treatment of the dependants of those serving with the colours monopolized our attention for some months to the exclusion of all other matters of usual interest.

With the continuance of hostilities, however, we have come to realize that many questions which we imagined could wait until after the war for attention must be dealt with at once, or at least carefully considered, and also that many new problems arising from the lessons of the war require attention. At a time when the best brains of the country are engaged in the prosecution of the war it is obviously undesirable—if it can be avoided—to engage in any programme of reform which vitally affects the interests of the whole profession. But we are not free agents in such matters. Whether we think it is a suitable time or not, other people are determined to press forward with matters in which we have a vital concern; and there is this to be said for them, that if matters of public health are to be left until after the war, it will be many years before any Government has the necessary time to devote to purely domestic affairs. Powerful influences are at work, and will seize the earliest opportunity to carry through Parliament measures of public health which will have a far-reaching effect on the whole profession. Bear in mind that Parliament at the present time shows no inclination to be bothered with contentious matters. Consequently, any proposals must be thrashed out beforehand so as to go to Parliament with some measure of agreement amongst the interests mainly concerned.

The first object, therefore, is to secure more or less general approval for any measure requiring legislative action, and it is essential for the profession to watch the trend of events and to be in a position to state its views on the various questions which are likely to be brought within the purview of practical politics. That is where we come up against the first practical difficulty. The profession has never yet spoken with a single voice. The one great voluntary organization which should be in a position to represent its views without question is too often weakened by internal dissensions or by ill-informed criticisms from outside. If we are to carry any weight it is essential that we should sink our differences and come to some agreement amongst ourselves, at least on fundamental principles. Otherwise the politicians will always be able to play off one section of the profession against another, and our interests will be sacrificed.

The problem which has recently attracted most attention is the proposal for a Ministry of Health. The scheme of the British Medical Association urges unification of authority and simplification of procedure. The chief point of the scheme is an equally balanced dual service representing both the curative and preventive side of medicine. It lays stress on the importance of utilizing the family doctor in domiciliary treatment of every kind. It insists upon the value of the voluntary hospital system, though recognizing that modifications may be inevitable in the near future. It suggests a large extension of the cottage hospital idea, which allows the family doctor to follow his patients to the hospital. And it emphasizes the need for organizing the clinical service on the lines of private practice, open to every class of practitioner.

A Government bill was drafted in the early part of this year, although it has never yet been introduced into Parliament. It provided for the transfer to one department under a responsible Ministry of all the powers and duties of the Local Government Board and the Insurance Commission, and certain of the powers and duties of the Board of Education, with power to take over at a later stage by Order in Council the powers and duties of other departments relating to health matters. It is now understood that the bill has been revised and its scope extended, and that it has passed the Committee on Home Affairs, and will shortly be introduced. If the profession supports the bill solidly, I believe it will go through, and representatives of the two Royal Colleges, the Royal Society of Medicine, and the British Medical Association are meeting shortly to endeavour to arrive at a common policy.

The Ministry of Health when first established will not necessarily affect the conditions under which medical practice is now carried on. But the first business of the Minister will be to secure the development and efficient administration of adequate health services. Our interest, therefore, is mainly centred in the services which will be established when the Ministry of Health is an accomplished fact. Changes are undoubtedly coming. The country is now alive as never before to the importance of the physical welfare of the individual, and every one is agreed that the best means for preserving health and curing disease should be available for every citizen. It is equally certain that the State will extend its responsibility, supervision, and control in these matters.

Now there are three possible forms of State aid. The first is to make the medical profession a salaried civil service, and the idea of a State Medical Service has steadily gained ground in certain quarters. It is well known, for instance, that many junior officers of the R.A.M.C. are keenly interesting themselves in the possibility of securing employment after the war without the necessity of purchasing or working up a practice, and are discussing a multiplicity of schemes all designed to afford them a maximum salary for a minimum of work. But no such scheme is contemplated by the Government or by any responsible authority. Nevertheless we cannot ignore the fact that the idea of a State Medical Service, which is so fascinating from its simplicity of administration, is continually being pressed upon the attention of the public.

The London Panel Committee is in favour of a comprehensive and co-ordinated scheme of preventive and curative medicine for all classes, and would have two distinct services working together under local control. It is opposed to any system of salaried officials on the clinical side, except administrators, resident medical officers, and practitioners specially devoting themselves to limited sections of professional work. It would have municipal hospitals established with general practitioners on the staff, and so related to the voluntary hospitals as to secure the ready transference of patients from one to another.

The views of the Society of Medical Officers of Health, so far as they can be ascertained, indicate that as many forms of treatment are really preventive measures, all such should come under the administration of existing public health departments.

The State Medical Service Association agrees as to the necessity of a complete and well-organized clinical service, including general practitioners, consultants, specialists, etc., but would go further and include dentists, dispensers, nurses, and midwives. It claims that no permanent system of medical service can be satisfactory unless it is free and open to all, and officered by whole-time salaried practitioners.

The Brighton Division has approved a scheme for a whole-time salaried service with provision for hospital treatment, consultant and specialist services, and for central laboratories. Its financial basis would be an extension of the existing insurance for medical benefit to all classes of the community.

It is well known that many members of the Advisory Committee of the Labour Party are inclined to favour a whole-time State Medical Service, although the party as a whole has not pledged itself to that policy.

Another suggestion is that a compromise might be effected on the following lines:

A. That every practitioner whose work takes him into the homes of the people should be paid a yearly retaining salary for certain duties performed for the State, as, for example: (i) Certification of deaths. (ii) Notification of births. (iii) Notification of infectious diseases. (iv) Certification of fitness to attend school. (v) Brief report as to any obvious sanitary defect noted in any house visited. (vi) Brief report as to any noted inferiority in quality of milk, meat, and food, etc., supplied to patients. (vii) Attendance in midwifery cases on emergency calls by midwife, up to a stated maximum number in a year.

The above-mentioned duties to be carried out in the course of the practitioner's daily work, and under penalty for wilful neglect to comply.

B. That every practitioner should be encouraged to hold at least one of the local public medical appointments, as, for

* Abstract of an address delivered to the annual meeting of the Birmingham and District General Medical Practitioners' Union on October 11th, 1918.

example: (i) School doctor. (ii) Poor Law doctor (or his equivalent). (iii) Certifying factory surgeon. (iv) Local M.O.H. (v) Medical referee or examiner for State or municipal employees. (vi) Medical officer to maternity and child welfare centre.

Such appointments would as far as possible be paid by time—say £50 a year for half day a week, as in the British Medical Association part-time schemes for school and maternity work.

These by no means exhaust the various schemes that are under discussion, but whenever the question has been debated in the Annual Representative Meeting the opinion has been expressed that any whole time salaried service for domiciliary work would be fatal to the best interests of the nation, and disastrous to the profession, and I hope all efforts in the direction of establishing such a service will meet with unfaltering opposition.

Another way in which State aid may be given is to amplify the insurance system, in which the sick are partly paid for by the State and partly by the individual. At present only the minimum benefits provided by the Act are in operation. The approved societies which declare a surplus on valuation will be in a position to afford their members certain additional benefits, such as (*a*) dental treatment; (*b*) convalescent homes; (*c*) extension of medical benefit to the dependants of insured members. Moreover, it was certainly not the intention of the Act that the medical service should be restricted to general practitioner service and a supply of medicines. Indeed, before the outbreak of war, the Government had decided to improve and develop the service, and had voted a large sum of money for that purpose. I feel confident that the first development in the direction of a so-called State service will be an improvement of the existing insurance service, probably by the provision of medical referees and consultant and specialist services. It is also probable that under Section 21 of the Act the domiciliary service will be more closely linked up with hospitals, dispensaries, and nursing institutions.

A third form of State aid has been suggested by Sir Bertrand Dawson, namely, the State endowment of fabric. The buildings and equipment would be provided, and the practitioner receive an increased proportion of his earnings as a salary, leaving him free to make up his income from his private patients.

In all these proposals the State is evidently going to take a prominent place, but I do not think the rising tide of State control need be feared if directed into proper channels. The scheme of the Association aims at preserving the independence of the general practitioner, and we have every reason to believe that the scheme is exercising a great influence on the minds of politicians and others who are interesting themselves in these questions.

We must realize that the public is determined to alter the existing arrangements, and, instead of waiting until we are forced into a scheme which does not commend itself to us, we should convince the public that we are quite prepared and able to make a better service than they have at present, or can hope to devise without our help.

What Sir Bertrand Dawson has called "team work" is very possibly one of the earliest developments to be expected, but, whatever changes are introduced, it is our business to see that the independence of the general practitioner is not destroyed.

Public clinics will be extended, and there will be an increase in the facilities for institutional treatment. Cottage hospitals will undoubtedly be extended. Improved methods of diagnosis and treatment will be adopted, and whilst every general practitioner may look forward to receiving an increased proportion of his income from the State, and a corresponding diminution in the value of his private practice, it is unlikely that he will become a mere salaried official divested of all initiative or responsibility.

It may not be possible to foresee the detailed procedure by which these changes will be brought about, but the man who is wise will take every opportunity of fitting himself to keep pace with the progress of events. Multiple partnerships are likely to become general, if only as a means of relieving the individual practitioners of being on duty for the whole twenty-four hours. They also afford a ready means of enabling a group of practitioners to cope with every variety of medical work which may be required in their area, and, by employing clerical assistance, to get leisure they could not otherwise enjoy.

Although I do not think the time is now ripe for the divorce of dispensing from medical practice, the general trend is in that direction, and it may come about sooner than we anticipate. The relation of medical practitioners to normal midwifery is another matter which is likely to become acute in the near future. The profession has got to decide whether it wishes to retain this work or is prepared to see it drift entirely into the hands of midwives. A solution of this problem may possibly be found in the employment of qualified midwives by medical practitioners for attendance on all normal cases.

I believe in the future there will be closer co-operation between general practitioners and dentists, and more attention will be paid to the prevention of dental disease, especially by the care of the milk teeth.

In view of the various reconstruction proposals known to be in contemplation or likely to be proposed in the immediate future, it is clearly desirable for the profession to secure representation on public bodies. It is equally essential that the considered views of the profession should be voiced by medical men in the House of Commons. But it must not be forgotten that a medical man in Parliament is there as the representative of his constituents—that is, of the people. Any attempt to promote a sectional interest at the expense of the interest of the rest of the people is foredoomed to failure. If we honestly try to promote the best public interest our professional interests will be safe. But advice and guidance in medical matters as affecting the health and welfare of the community is urgently needed by Parliament, and here there is certainly a field for men of the right type and experience.

In conclusion, I believe the outlook for the general practitioner is full of encouragement. I believe that he will occupy an important position in the reconstructed social state which will follow this world-war. The health of the nation is now recognized as the first essential, and it is in the work of preserving health that the value of the general practitioner will be realized more than it ever has been before.

VOLUNTARY HOSPITALS AND A MINISTRY OF HEALTH.

CONFERENCE OF THE BRITISH HOSPITALS ASSOCIATION.

A CONFERENCE was held at St. Thomas's Hospital, London, on October 18th, under the auspices of the British Hospitals Association, to consider further the proposal to create a Ministry of Health and its possible effect on voluntary hospitals. In the absence of the President (Lord Sandhurst) Mr. H. WADE DEACON, Chairman of the Liverpool Royal Infirmary, presided, and, in opening the proceedings, said that the general principle underlying their position was that the voluntary system should be maintained. The Ministry of Health Bill, so far as its provisions were known, did not directly affect the voluntary hospitals at all, although indirectly, of course, its effect would be very considerable.

Sir GEORGE MAKINS, President of the Royal College of Surgeons of England, proposed the main resolution:

> That the British Hospitals Association welcomes the proposal to form a Ministry of Health. The Association is strongly of opinion that the interests of the patients and of the community as a whole, the progressive education and training of doctors and nurses, and the prosecution and advance of scientific research, will be best served and provided for in the scheme by the retention of the voluntary hospital system.

He said that the proposal to form a Ministry of Health was meeting with the support of the whole nation and of the medical profession, and it was unlikely that a dissentient voice would be raised at that meeting as to the first proposition. The interests of those present, however, were mainly in the future of the voluntary system. This was one of the great links with the past of which the nation generally had most reason to be proud; it had endured for many centuries and through great national upheavals. The very foundation in which they met that afternoon, after it had been robbed of its charter by Henry VIII, had to be restored to its former position and something of its former wealth by Edward VI, simply because the nation even at that time felt the need of such an institution. The voluntary hospitals, moreover, had been the seat of medical training; they had sent forth the medical practitioners of the day. The universities, it was true, had also taken a great interest in medical education, nevertheless the practitioner was the product

of the voluntary hospital system. It had been urged that a central administration of hospitals would tend to a general uniformity and an increase of efficiency. On the other hand, they must recognize that it would tend also to reduce every institution to the same level, and possibly to a dead level, at which the institution would be cramped and handicapped by official administration. A change of this kind would remove that proper spirit of emulation between hospitals and schools which had done so much in the past to assist progress and to advance medical teaching. Again, one great feature of medical education in this country had been the individuality of the teaching in the various schools. Very marked differences existed between schools, and the general result was all to the good. If the whole of the students were turned out under one system exactly alike in every particular, it would not be well for the medical men of the future. As a teacher and examiner, he had always felt that he gained a large amount of knowledge from coming in contact with students from different schools, which were unlike in their management, and possibly also in their spirit. In his opinion, in the present emergency a considerable proportion of the success which had attended the efforts of the medical service had depended upon the fact that the men who had done the work had been gathered from various quarters, and had had to work together in concert, and to some extent in emulation. He also pointed out the work which the voluntary hospitals were doing on what might be called the social side—the work, for example, of the hospital almoner and of the maternity welfare committees; all this depended a great deal upon the fact that the hospitals were voluntary institutions. Many such things would no longer be undertaken by a great central administration. The present system gave an opportunity for individual effort which, he thought, might result in the solution of problems which otherwise would be scarcely taken up at all. There was also the question of the influence that the hospital exercised upon the patient. Somehow he could not help feeling that the hospital which was under a voluntary committee was different in spirit from the hospital which was managed by a Government department. The voluntary hospitals owed their success in great measure to the strong sympathy which existed between the general public and the aims of the hospitals. In the event of the transference of the management of these hospitals to a Government department, the whole of that would be lost. At present it was a channel by which sentiment developed into action, and in whatever way they looked at it they were well aware that most of the best and furthest reaching things done in the world were done under the influence of sentiment. It would be a disaster if the voluntary system were to collapse.

The Rev. G. B. CRONSHAW, in seconding, laid stress upon the value of keeping up institutions which allowed for some elasticity in management. America was trying to get back to the voluntary hospital system after an experience of State hospital administration. As a hospital manager he felt that it would be a great advantage to have a Ministry of Health so long as the voluntary system was conserved, for he had to deal with no less than five public authorities at the present time in order to get the sanction for some scheme of treatment for tuberculosis or venereal disease, and if there was one central authority in the district it would be so much the better.

Sir HENRY BURDETT said that from information which had come to him from America only that day he gathered that, arising out of the war, the United States Government had come to the conclusion that the Hospitals Association of America was a very important body, and that the work which hospitals were doing, many of them on voluntary lines, was one which was worthy of being strengthened. So it had come about that the association was going to have what would be described in this country as a royal charter, and he suggested that an effort be made to secure a royal charter for the British Hospitals Association. Another matter arising out of the new departures was the need for payment of the medical staff. The demand for this would strengthen with the admission into hospitals of patients at fixed rates of payment. They must have affiliated to their hospitals, perhaps in separate buildings, accommodation for all classes of the community, and that could not be secured without payment of the visiting medical staff. He ventured to think that if all the medical men in the voluntary hospitals were paid forthwith it would prove in practice an economical measure and would have surprising results. In hospital administration, further, they should have a medical superintendent. That was a matter which had to be fought out with the profession. In the United States it had been gone into very thoroughly, and the medical superintendents who were appointed were responsible for the administration throughout, but had nothing to do with finance, which was laymen's work. Taking it all round, if a medical man of ability had administrative gifts, he was now paid in America as medical superintendent more than the average practitioner would receive in the ordinary pursuit of his profession.

A number of representatives of hospitals in various parts of the country then briefly addressed the meeting in support of the voluntary system, and some suggestions were made for propaganda work in order to bring home to the local community the value of the hospital. Disagreement was expressed with a Birmingham representative who thought that while the system should be continued as voluntary in management they should be prepared to receive grants in aid either directly from the State or through the medium of town or city councils, in the same way as grants were already made for certain forms of treatment.

Mr. BISHOP HARMAN pointed out that if there were a Ministry of Health it was inevitable that the whole of the Poor Law system, so far as its medical work was concerned, should be brought under the general administration of the Ministry. The accommodation for patients in Poor Law infirmaries was considerably greater than in voluntary institutions, and the result would be that these new State infirmaries, entirely changed in their character and cleansed from Poor Law stigma, would comprise perhaps two-thirds of the hospital accommodation in the kingdom, and the voluntary hospitals only one-third. That seemed to him the most serious point they had to face. It would not be so much a question of the State stepping in to control the voluntary hospitals as the relation which the voluntary hospitals would have to bear in the future to the hospitals which belonged to the State and for which the State was responsible from beginning to end. He instanced the parallel case of the educational institutions and the Act of 1870. The competition of voluntary schools had been altogether good in its effect upon State-supported schools, and in the same way he did not think they need be very fearful as to what the State might do with the voluntary hospitals. In some districts there would doubtless be a tendency to absorb the voluntary hospitals, and he thought they might find protection by appealing to a body which would be an independent arbiter, as the Charity Commissioners had been in the case of all endowed institutions.

Major MCADAM ECCLES said that there were two main principles which they had to bear in mind: first, that the national health must be improved; and, secondly, that there was a place for the voluntary hospitals in that improvement and in the correlative maintenance of medical and nursing education. Voluntary institutions had served both these purposes in the past, and, having experience which State hospitals would not have, they were obviously the bodies to work with in the future. He believed that the Government, when it came to look into this matter, would realize that the voluntary hospitals were a magnificent asset to this country, and for their own part they must be prepared to bring the voluntary hospitals, and quickly, up to the standard which would satisfy a new and exacting Ministry.

The Hon. Sir ARTHUR STANLEY said that he did not believe that for a long time to come the voluntary hospitals would have anything to fear from a Ministry of Health. Dr. Addison had told him quite definitely that those who were in charge of the bill had no intention whatever of enforcing or trying to enforce any particular principle or doctrine of their own. All that they wanted to do in this initial stage was to collect under one roof all the powers affecting public health which were now exercised by a very large number of different public departments. He (the speaker) thought that the people of this country would insist upon having a voluntary system alongside the State system for the control of health. The rightful analogy was that of the Royal Army Medical Corps and the Red Cross. Nothing could possibly have been better than the work of the R.A.M.C., but the fact that there was also an independent body built up by the public was of considerable value, not merely for the provision of accessories, but as a stimulus acting continually upon the official system. Whatever happened, the country itself would never allow the voluntary system to be given up, and what they had to do now was to see that the case of the voluntary hospitals was put in the best possible way, both in Parliament and outside.

The resolution was carried unanimously, as was a second resolution requesting the Council, when the terms of the Ministry of Health Bill were known, further to consider the question, to take such steps as might be necessary, and to report to the general body of the British Hospitals Association.

VACCINES FOR INFLUENZA.

WE have received for publication the following account of the proceedings of an important conference held at the War Office on October 14th, 1918, on the utilization of bacterial vaccines for the prevention and treatment of influenza.

The following were present: Colonel Sir William Leishman, K.C.M.G., C.B., F.R.S., K.H.P., in the chair; Deputy Surgeon-General P. W. Bassett-Smith, C.B., C.M.G., R.N.; Lieut.-Colonel D. Harvey, C.M.G., R.A.M.C., Officer-in-Charge Vaccine Department, Royal Army Medical College; Major F. W. Andrewes, F.R.S., R.A.M.C.(T.), Pathologist, St. Bartholomew's Hospital; Captain S. R. Douglas, late I.M.S., Inoculation Department, St. Mary's Hospital; Dr. J. Eyre, Director of the Bacteriological Department, Guy's Hospital. (Professor W. Bulloch, F.R.S., Pathologist, the London Hospital, was unable to attend, but has since expressed his general agreement with the conclusions reached by the conference.)

The Director-General of the Army Medical Service, after welcoming the members, explained to them the object with which they had been called together and the great and urgent importance of their endeavouring to formulate definite recommendations as to the employment of vaccines in view of the probability of an extension of the epidemic of influenza.

The Committee then proceeded to discuss the items of the agenda form which had been drawn up by the Chairman, and reached the following conclusions:

After discussing the available evidence as to the bacteriology of the present epidemic the majority of those present were agreed that there was considerable doubt as to the primary etiological significance of the *Bacillus influenzae* of Pfeiffer, and considered that the existence of some as yet undiscovered virus must be regarded as possible. They had, however, no doubts as to the very frequent presence of Pfeiffer's organism in this epidemic, nor as to the great importance of the part which it played in the production of the symptoms and complications of the disease. The organisms most frequently associated with the *B. influenzae*, and in their opinion chiefly responsible for the gravity of the secondary pulmonary complications, are pneumococci and streptococci.

The general question of the employment of a bacterial vaccine for the control of the incidence and severity of the epidemic was discussed, and it was unanimously agreed that inoculations with a suitable vaccine might be expected to be of value in both directions.

The appropriate constitution of such a vaccine was then thoroughly discussed in the light both of the personal experience of the members of the conference and of the information available from medical literature.

It was agreed that the three following organisms only should be employed—the *Bacillus influenzae*, the pneumococcus, and the streptococcus. In each instance it was decided that a number of different strains and types of each organism should be utilized in the preparation of the vaccine, and that these strains should have been recently isolated from cases occurring during the present epidemic, and should be submitted to strict tests as to race and type prior to use.

The relative proportions of the different organisms and the dosage of the vaccine were then dealt with, and it was agreed that the following should be its constitution and dosage:

	First Dose.	Second Dose.
B. influenzae	30 millions.	60 millions.
Pneumococcus...	100 ,,	200 ,,
Streptococcus	40 ,,	80 ,,

The vaccine should be sterilized by a temperature of 55° C., maintained for half an hour, and 0.5 per cent. of carbolic acid should subsequently be added as an antiseptic.

Whenever possible, both doses of the vaccine should be given, at an interval of ten days.

It was thought that the reactions to be expected from this vaccine would in the majority of cases be either trivial or non-existent. It was, however, considered to be of great importance that in the case of soldiers a period of twenty-four to thirty-six hours' light duty should always be given.

As regards the conditions under which this prophylactic vaccine should be employed the conference were unanimous in considering that, whilst it would be preferable to carry out the inoculations before exposure to infection, there do not exist any adequate grounds for withholding it in the case of a body of men amongst whom influenza had already appeared, provided that care is taken not to inoculate any individuals who have fever or are obviously ill, or those who are at the time suffering from catarrh. At the same time a careful watch should be kept for any evidence of a period of increased susceptibility following upon inoculation, and should this become manifest it is advised that instructions be given to lower the dose recommended above.

The conference made the following recommendations as to dosage of the vaccine in the special cases mentioned below.

(*a*) *Children.*—It is not advisable to inoculate children under the age of 3. For older children the following doses may be given:

From 3 to 7 years ... Quarter of the full doses as detailed in the table given above.
From 7 to 16 years... Half of the full doses.
Above 16 years ... The full dose.

(*b*) *Colonial Troops.*—In this case they recommend three doses at intervals of ten days as follows:

First dose ... Half of the first dose as detailed above.
Second dose... The "first dose" as detailed above.
Third dose ... The "second dose" as detailed above.

(*c*) *Native Contingents.*—Here, too, they recommend three doses at intervals of ten days, as follows:

First dose ... The "first dose" as detailed above.
Second dose... The "second dose" as detailed above.
Third dose ... The "second dose" as detailed above.

The conference then discussed at length the question of employing the vaccine for the treatment of severe cases of influenza and its complications; on this they make the following recommendations:

(*a*) The vaccine is most likely to be of service in the treatment of subacute and of chronic cases; in this class of case the initial dose which they recommend is one-fifth of the "first dose" as detailed above.

(*b*) The use of the vaccine in the treatment of severe cases of secondary bronchopneumonia cannot as present be recommended, in view of the dangerous rapidity and severity of many of these cases. Should it, however, be desired to try the vaccine in such cases it is advised that the initial dose should not exceed one-twentieth of the "first dose" as detailed above.

A profitable discussion then followed upon technical details and upon the investigations bearing upon the subject which were felt to be desirable and likely to lead to practical improvements in respect of the employment of vaccine. These hardly admit of summary, but it was agreed that among the most important were the questions of the unity or multiplicity of types of the *B. influenzae* and of the identification of this organism, and some arrangements were made between the members for exchange and collection of cultures, which it was hoped would lead to progress in these directions.

The Committee then considered the practical steps to be taken for the preparation of the vaccine on the assumption that considerable demands might be made for it at an early date. Thanks to the generous assistance offered by the members of the conference this was placed upon a satisfactory basis, it being agreed that the numerous strains of the organisms which were in possession of most of the members, and which had been obtained from recent cases, should be sent to Captain Douglas at St. Mary's Hospital, where he has kindly consented to put them through the necessary tests as to purity, type, etc. Those selected will then be passed on to Lieut.-Colonel Harvey at the R.A.M. College, who will arrange for the preparation of the vaccine for army purposes, and also to Deputy Surgeon-General Bassett-Smith at the Royal Naval College.

In order to ascertain the degree of protection given by the vaccine the conference recommend strongly that the necessary administrative steps be taken to secure statistical records dealing with the following matters:

(*a*) The reactions following the inoculations.
(*b*) The occurrence of any cases of severe illness within forty-eight hours of inoculation.
(*c*) The incidence of the disease among the inoculated and uninoculated.
(*d*) The incidence of complications among inoculated and uninoculated.

W. B. LEISHMAN, Colonel,
War Office, Chairman.
Oct. 16th, 1918.

British Medical Journal.

SATURDAY, OCTOBER 26TH, 1918.

THE INTERDEPENDENCE OF THE SYMPATHETIC AND CENTRAL NERVOUS SYSTEMS.

From their extensive investigations on infection and intoxication of the central nervous system, reported in previous numbers of *Brain* and elsewhere, Dr. David Orr and Lieut.-Colonel Rows[1] distinguish two paths of invasion: (*a*) lymphogenous, passing up the ascending lymph paths of the cranial or spinal nerves, and giving rise by continuity to a primary inflammation of the fixed tissues; and (*b*) haematogenous, causing degenerative lesions associated with vascular dilatation, oedema, and hyaline thrombosis, but with little, and then only secondary, inflammation of the fixed tissues of the central nervous system, dependent upon the irritative effects of the degenerative products, and upon the reaction incidental to repair. The lesions produced by experimental intoxication of the blood stream involve the white matter of the spinal cord in a non-systemic manner, two areas—namely, the periphery and the posterior columns—being affected, but in varying degrees at different levels. The brain showed coagulation necrosis of the nerve cells in the cornu ammonis, the cerebral cortex, and the amygdaloid nucleus, and also softening in the stratum moleculare of the cornu ammonis. From the distribution of these lesions it is clear that in addition to toxicity of the blood stream there is another factor which determines where the toxin shall exert its effect. The lesions in the cord and brain occur in the regions supplied by the blood vessels of the pia arachnoid, and there is a considerable weight of evidence in favour of the view that the sympathetic nervous mechanism is an important factor in determining the parts of the central nervous system to be primarily acted on by a poison circulating in the blood. The existence of vasomotor fibres in the brain has until comparatively recent times been steadily denied; but the action of adrenin has proved the presence of vaso-constrictors of the cerebral blood vessels, and non-medullated sympathetic fibres have been traced from the main mass along the posterior roots to supply the vessels of the cord. Moreover, stimulation of the posterior roots has been seen to cause constriction of the blood vessels of the dura mater.

Non-systemic lesions of the spinal cord characterized by atrophy of the myelin sheath and sclerosis and apparently due to some toxaemia are described by the authors in cases of visceral cancer, in Addison's disease, and in subacute combined degeneration; these diseases show different degrees of the same pathological process, which is least advanced in visceral cancer and most severe in subacute combined degeneration. In Addison's disease the existence of adrenal inadequacy makes vaso-dilatation of the pia arachnoid vessels of the cord highly probable, and it is suggested that in these three diseases there is, as the result of some interference with the thoracico-lumbar sympathetic reflex, possibly caused by pathological stimuli or, as in Addison's disease, by the absence of substances necessary for its balance, increased permeability, depending on dilatation, of the vessels and so undue diffusion of the toxin in the underlying nerve elements.

The authors feel justified in suggesting that if this assumption that organic lesions of the spinal cord may result from disturbance of the sympathetic system is correct, some functional disorders of the central nervous system have a like origin. In the discussion of this difficult problem they point out that the psychoneuroses of war demonstrate conclusively how disturbance of the sympathetic mechanism, of the endocrine glands, and morbid emotional conditions combine to bring about pathological psychic and nervous phenomena. It therefore follows that in the investigation of nervous disease, especially of the brain, all the collateral symptoms due to disturbance of all the peripheral organs intimately connected with it should be studied in addition to the symptoms obviously due to disorders of the central nervous system.

[1] D. Orr and R. G. Rows, *Brain*, 1918, xli, 1-22.

WARDS FOR INFANTS.

The need for some energetic and systematic action to check the excessive mortality among infants under 18 months of age is now fully recognized. Infant welfare centres are doing valuable spade work, and the periodic advertisement afforded by a baby week serves to keep the subject before the public mind.

In order to find out what is actually being done at the present time in one large area—London—an inquiry has been held by the Mansion House Council on Health and Nursing, and its report has been published.[1] Replies to a series of searching questions have been furnished by a large number of institutions dealing directly or indirectly with disease in children. As regards hospital accommodation, it may at once be said that it is insufficient to meet the demand, but in the institutions under the management of the Poor Law authorities there is an adequate supply of beds, and, in a few instances, there are special wards for children and babies.

Although the majority of hospitals, with or without medical schools attached to them, undertake the treatment of infants and provide them with the best available medical and nursing skill, there is no uniform plan of dealing with them, and each hospital makes its own regulations as to admission to general or special wards with, but more commonly without, the mothers. Admission to the Poor Law infirmaries is easily obtained, but the old-standing prejudice too often prevents application for admission until danger threatens, and hence the average of success in treatment is proportionately low. The facilities for nursing are by no means so good in the infirmaries, the average number of beds per nurse being as high as eight or ten, whereas in most hospital wards the average does not exceed three or four. It would thus appear that increase of hospital accommodation is called for in the first instance, and that some uniform method of supplying it is eminently desirable. The interests of the infant in arms should be first considered. In many cases it is advisable that the mother should accompany the child for a short time, and the accommodation provided for them should be separate from the main children's ward.

It is held that the treatment of very young infants should be regarded as a special branch of children's nursing. Even in special hospitals it is often the custom to deal with children of all ages in the same ward, and this may prevent the very young from

[1] Report of an Inquiry into the Adequacy of Hospital Accommodation in London for Infants and Young Children. National League for Physical Education and Improvement, 4, Tavistock Square, W.C.1.

getting the close attention they require. Another drawback to treatment in a general ward is the ever-present liability to infectious disease, necessitating closure for a time, To meet these well-recognized defects it is evident that some differentiation should be made between sick children under 18 months of age and others, both as regards housing and nursing.

The special training of nurses in the management of children's diseases can only be satisfactorily carried out as an adjunct to general training. The nurse trained only in this special work finds herself at a disadvantage when called upon to undertake general nursing. Much may be learnt by an intelligent probationer in a comparatively short time by working under an experienced sister or charge nurse, but it is absolutely essential that such skilled supervision should be at all times at hand. More especially is this the case in the infirmaries. The evidence forthcoming from some of the infant welfare centres does not afford a very favourable account of the results of infirmary treatment, and it is only in a few of these institutions that any special provision is made for babies. With the wider extension and greater popularity of health visitation it may be possible to induce mothers in poor circumstances to seek institutional aid for their children before disease is too far advanced. The suggestion that observation wards should be attached to welfare centres, whereby serious and trivial cases might be differentiated, has been made by the British Hospitals Association. "The establishment of clinics, or treatment centres, in touch with the hospital," although doubtless intended to be of general application, might very well include clinics for the special study and treatment of the ailments of infancy. If at the same time some uniform provision could be made in the hospitals for separate accommodation, a vast amount of valuable experience could be acquired and utilized which is now lost, especially in the infirmaries.

The programme of the British Hospitals Association set out in the pamphlet noticed in our issue of August 24th, p. 192, deals with the functions of the voluntary hospitals in general, and makes the claim that their great value lies in their "elasticity of organization and flexibility of adaptation." These qualities have of late years been somewhat freely exploited by the state and by the municipalities. Tuberculous and venereal diseases have been placed under their management as far as treatment is concerned, and we may yet have a demand that the ailments of the infant community may be in like manner committed to their charge. At the present time the voluntary hospitals cannot provide the necessary accommodation unless financial aid be forthcoming. The care of the newly born is of more importance to the community than the care of the adult, damaged in many cases beyond repair, often as the result of his own carelessness.

THE COVENTRY CASE.

The general effect of Mr. Justice McCardie's judgement in the Coventry case (Pratt and others *v.* the British Medical Association and others) was stated in the Journal of October 19th, p. 451. A full report is published in the Supplement for this week. Though the judgement was delivered on October 15th, the formal terms of it were reserved for further argument until October 24th. We are therefore unable to publish a report of these proceedings in this week's issue. The Council of the British Medical Association at its meeting on October 23rd considered the judgement of Mr. Justice McCardie, and decided to enter an appeal.

AN ITALIAN ASSOCIATION.

Union is strength, and, with the intention of drawing closer the bonds that unite us with Italy, a well known English Italianist founded *The Anglo-Italian Review*, a monthly periodical, last May. In the pages of its successive numbers the reader will find a most interesting series of articles written with the object of explaining the two countries to one another. From the British point of view it is of no little value to have the aims and aspirations of modern Italy set forward with the skill and sympathy of professed students and lovers of our gallant ally. Intelligent comprehension of the foreigner is not our forte. The *Review* is wide in scope, and deals with politics and economics as well as art and the humanities. In its October number[1] Emilio Colombi gives a vivid picture of the way in which certain wounded Italian officers reacted to the disaster that overtook the Italian forces at Caporetto just twelve months ago. The need to retrieve the fortunes and moral of their country was urgent; in a few days an association for political propaganda in Lombardy and Northern Italy was organized, and the whole affair set upon a sound footing. During 1918 the scope of the association has widened and its field of action has extended; it has, indeed, become a very important factor in maintaining the moral of soldiers and civilians, in tracing out *imboscati* (for every country has its camouflaged shirkers), and in providing for many of the needs arising out of the war. We offer our congratulations to the association on the excellence of its work as portrayed to us. The *Review* may be cordially recommended to the attention of all who seek a fuller and more generous understanding of modern Italy, our friend and ally.

RECRUITING OF MEDICAL OFFICERS FOR THE U.S. ARMY.

On previous occasions we have referred to the interesting resemblance between the position in which the United States medical profession finds itself and the difficulties with which the profession in this country has had to contend during the course of the war. In certain respects this resemblance seems now to be diminishing. In the *Journal of the American Medical Association* for September 21st, 1918, there was an editorial article entitled "Physicians under the selective service law," in which the hope was expressed that special regulations would be issued for the guidance of the selective service boards in the placing of physicians; but as this has not been done, medical practitioners will go through the same procedure as other men. Each registrant, of whatever calling, receives from his local board a set of questions (questionnaire) in which he is required to state whether or not he desires deferred classification or exemption. If he waives these rights the matter is settled so far as he is concerned; but others may intervene before the appeal board and ask for exemption or deferred classification for him. The grounds for such a demand are (1) physical disability; (2) dependency; (3) community need. The conscientious objector is not recognized in the United States. Our contemporary considers that comparatively few active practitioners in medicine will claim exemption on the ground of physical disability, an opinion with which experience in this country accords. Under the heading "dependency"—which is known to us as "personal hardship"—the questionnaire appears to go very thoroughly into the financial status of each registrant. The exemption under "community need" is regarded as the most important; and it is here that procedure in the United States seems to have parted company with that followed in this country. Our professional committees, consisting almost entirely of actual practitioners in medicine and surgery, have been entrusted with the duty of safeguarding the needs of the civil community. To assist in this work representatives of Government

[1] *The Anglo-Italian Review*. October, 1918. Edited by Edward Hutton. London: Constable and Co. (Price 15s. per annum.)

departments concerned with health matters sit with the professional committees in an advisory capacity without vote; in the background there exists still a veto possible to the Government departments concerned, with regard to any individual practitioner whose work in a civil capacity is regarded by that department as essential to the community. In practice it has not been found necessary to exercise this veto, though doubtless its existence tends to promote satisfactory working of the machinery. In the United States, on the other hand, the decision is left to the selective service boards, consisting presumably mainly of laymen. The local boards have authority, subject to the right of appeal to the district boards, to decide claims of registrants who are engaged in occupations specially designated by law. The district boards are authorized to appoint advisers, who are not members of the boards and have no right to vote. If, therefore, a question arises as to whether a certain medical registrant is needed in a medical college, in a hospital, or in civilian practice, the "adviser" nominated by the district board will investigate and report. The decision as to the use of the medical man will rest with the district board, which has authority to decide claims for exemption on the grounds that any particular occupation or employment is necessary, and that the registrant is necessary therein. So far as we understand the position, the Government of this country has seen fit to entrust the medical profession with greater powers than is the case in the United States. Although the difficulties in the way of the professional committees as tribunals under the Military Service Acts have been enormous, we think we may say that they have been satisfactorily surmounted. It will be interesting to see how the alternative method of entrusting the decisions with regard to doctors to lay tribunals, as seems to have been adopted in the United States, succeeds. The "advisers," who are presumably medical men where the medical profession is concerned, will have a great responsibility, and it is to be hoped that the district boards will nominate these officials with the full approval and advice of the local medical profession.

CONTROL OF VENEREAL DISEASE IN THE UNITED STATES.

Two hundred thousand pounds are to be expended by the Federal Government through the State boards of health in the control of venereal disease in the fiscal year ending June 30th, 1919. An officer of the public health service will have general charge of the work in each state in co-operation with the state health officers. The New York State legislature of 1918 has now passed an amendment to the public health law giving power to local boards of health to exercise control in the matter of venereal disease.[1] This amendment provides for the examination of suspected persons by a public health officer or other licensed physician, such examination, however, being subject to restraint by a magistrate at his discretion. Examination is to be made of persons convicted of vagrancy or of frequenting disorderly houses or houses of prostitution before they are released by court or magistrate. Treatment of those suffering from the disease is required and regulated, free treatment being provided for the indigent. Only licensed physicians are allowed to treat such persons, and prescriptions are to be carefully guarded. All reports and information are to be regarded as confidential as far as the carrying out of the provisions of the law will permit. Violation of any of these provisions is to be accounted a misdemeanour, while special protection is to be extended to the naval and military services by making it a felony for any one aware that she is the subject of infection to have sexual intercourse with any person in either branch of service. A Bureau of Venereal Diseases has already been established in the New York State Department of Health. Its object is to assist in carrying the provision of this new law into force in the most practical and thoroughgoing manner. Its efforts will be chiefly directed to the arousing of public interest in the prevalence of the disease, its communicable nature, its far-reaching effects upon the individual and the community, and to the education of the people in the methods for its control and suppression. Among the members of the bureau is an inspector of the clinics and dispensaries provided for the treatment of indigent patients. This will include the supply of arsphenamine (salvarsan), and experiments in the production of that substance are now being conducted in the State laboratory.

[1] *New York Medical Journal*, September 14th, 1918.

TREATMENT OF THE DISABLED IN WALES.

In Wales, as in England, the provision hitherto made by the Ministry of Pensions for the treatment of disabled men discharged from the army and navy has not met the necessities of the situation. The Ministry seemed at first disposed to assume that existing hospitals would be able to deal with the problem, but it was manifestly too large to be solved in this way. The civil hospitals now reserve many beds for acute military cases, and as soon as the war is over they will wish to revert to their ordinary civil work. Hospitals for pensioners suffering from all those conditions now treated at the special military surgical (orthopaedic) centres will be required for several years after the war is over, but, so far as we know, all these centres will be wound up six months after peace is declared. A special organization is needed which can be continued for so long after the war as may be necessary. This has been recognized in Wales, and the Institutional Committee of the principality has recently approved a scheme put before it by Colonel J. Lynn Thomas, C.B., C.M.G., consulting surgeon and inspector of military orthopaedics to the Western Command. The scheme is comprehensive and embodies a plan for an institution to meet the needs of Welsh pensioners to-day and of the civil population of Wales in the future. The realization of the scheme has been made possible by the generosity of Mr. and Mrs. Laurence Philipps, who have purchased a large residence, "Rookwood," at Llandaff, about three miles from the centre of Cardiff. It stands on a site of twenty-six acres, laid out as gardens and park. The house, which has been maintained as a hospital for officers for the last two years by Mrs. Purnell, who has cordially approved the scheme, will provide forty beds, all on the ground floor, for paraplegic and other helpless patients, and the park affords ample space for the erection of hutted wards.

THE PANDEMIC OF INFLUENZA.

There is at present no evidence of any decline in the pandemic of influenza, which is literally world-wide, every continent being infected. The Local Government Board has issued a rather belated memorandum on the history of influenza and the steps which can be taken by public authorities and individuals to check it.[1] The final observation will meet with general approval. It is that "the only safe rule is to regard all catarrhal attacks and every illness associated with rise of temperature during the prevalence of influenza as infectious." The most interesting part of the memorandum is the appendix, containing the substance of the report, which we publish elsewhere (p. 470), of the recent conference at the War Office on vaccines for influenza. The vaccine recommended is being prepared for the use of the army and navy at the Royal Army Medical College and the Royal Naval College, but we gather from a statement in the memorandum of the Local Government Board that no vaccine is as yet available for the treatment of influenza in the civil population.

[1] *Memorandum on Epidemic Catarrh and Influenza.* 1918. To be purchased through any bookseller, or directly from H.M. Stationery Office. Price 1d.

Medical Notes in Parliament.

War Pensions Bill: Penalty for Refusing to Submit to Treatment.—The Naval and Military War Pensions Bill, the second reading of which was moved by Mr. Hodge in the House of Commons on October 22nd, contains the following clause (7):

If any disabled officer or man, on being so required in the prescribed manner, refuses or without reasonable cause fails to submit himself for medical examination, or if any disabled officer or man as respects whom it has been certified that treatment in an institution or otherwise is necessary in his interest, refuses or without reasonable excuse fails to undergo such treatment in accordance with such directions as may be given in that behalf by or with the approval of the Minister, the Minister may, if he thinks fit, notwithstanding anything to the contrary in any Order in Council, Royal Warrant or Order, by Order direct that any pension or allowance to which that officer or man would otherwise be entitled shall cease to be payable either in whole or in part for such period as may be specified in the Order.

Mr. Hodge said that in the Royal Warrant there was power to punish a man to the extent of withholding half his pension if he refused treatment, but if a man's pension was taken away the punishment, if he was a married man, fell on his wife and child. He hoped that the power asked for under the bill would of itself be sufficient to induce men to accept treatment.

Sir Henry Craik moved the rejection of the bill, and during the course of the discussion Sir Watson Cheyne criticized Clause 7 strongly. A man might object to further treatment for various reasons; one was previous experience of treatment which had not been successful. The only condition under which there was the moral right to compel a patient to submit to operation was if cure could be promised, but often all that could be said was that a little longer treatment would be the best course, though cure could not be promised. Not only might an operation prove unsuccessful, but it might lead to the loss of a limb, or increased deformity, or to death. Personally he would never say that a man should undergo an operation unless it were a question of life or death within a few hours; then every persuasion should be used. In other cases the question of undergoing further treatment should depend entirely upon the man's own will and judgement.

Sir A. Griffith-Boscawen, in the course of his reply, denied that Clause 7 involved a new principle, as it already existed in Article 4 of the warrant, whereby a pension could be halved if a man unreasonably refused treatment. The warrant included operations, but in considering how the warrant should be dealt with it was decided never to enforce it for the refusal of operation, and it was not intended to do so; the clause could be safeguarded by the insertion of words providing that it should not be enforced in case of refusal of operation. The result of refusal to accept treatment was that a man got a bigger pension than he otherwise would because some disablement might be removed, he would not say by operation, but by massage, electricity, orthopaedic treatment, and so on. It was unfair to the State that it should have to pay the higher pension. Some of the Dominions had a clause similar to this. One such warrant contained a clause that if a man refused treatment his pension was reduced by the amount of the extra disability which medical men decided he had in consequence of the refusal.

Other members criticized the bill, but Sir Henry Craik did not persist with his amendment for rejection, and the measure was read a second time.

The Indian Medical Service.—Colonel Yate, on October 21st, asked the Secretary for India whether he had received a reply from the Government of India regarding the position of officers in the Indian Medical Service, and if he could state what increase of pay had been granted to those officers so as to ensure an efficient and contented Indian Medical Service. Mr. Montagu regretted he could not announce a decision on this question, regarding which he was in telegraphic communication with the Government of India. He was doing all that he could to expedite the settlement of what he recognized to be an urgent and important issue, and hoped to be in a position to make a statement within a week or two.

Rabies in Devon and Cornwall.—In reply to Sir William Bull, the President of the Board of Agriculture said that the possibility of a dog being carried in an aeroplane to this country had been recognized and warnings issued. Forty cases of rabies had been confirmed since September 7th, thirty-five in Devon and five in Cornwall, and of these no fewer than twenty-nine occurred in Plymouth. These figures did not by any means represent all the facts of the case. He was satisfied that rabies had been in existence in these counties for several months, probably since the end of May; the latest outbreak discovered was in the Wadebridge district of Cornwall, some thirty miles distant from Plymouth. He made a strong appeal to all persons who had visited Devon or Cornwall with dogs during the last five months that they should place their dogs with veterinary surgeons at once, and inform his department of the fact. He regretted to say that the appeal for this information issued to the press on October 11th had met with only one response. Human life was at stake; at least twenty-one persons were known to have been bitten by these dogs, nine being children, and any person who failed to assist by giving information required would incur a very grave responsibility should the disease spread to other districts. There were suspicions as to how the outbreak of rabies in Devon and Cornwall first occurred, but he would not like to say on suspicion what he believed the case to be. No deaths had occurred at present.

Discharged Soldiers.—Replying to Lord Henry Cavendish-Bentinck on October 17th, Mr. Bonar Law said he was unable to agree with the statement that the Pensions Ministry had failed to secure either adequate treatment or training for discharged soldiers, and therefore he was unwilling to appoint a committee of inquiry, as was suggested by the hon. member. Lord Henry Cavendish-Bentinck asked whether Mr. Law was aware that only one in three of the discharged soldiers was receiving adequate treatment, and that only one in ten was receiving any training. Mr. Law answered that he was satisfied that all that could be done was being done by the Pensions Minister.

Discharged Men.—In reply to Major Chapple, who asked a question as to the establishment in Scotland of an institution on the lines of the Chelsea Hospital, Sir A. Griffith-Boscawen, on October 17th, replied that if the suggestion referred to pensions now awarded at Chelsea Hospital, he was not prepared to consider it, as the centralization of awards was in present circumstances believed to be the only satisfactory method of securing uniformity. Chelsea Hospital, as an institution for the care of veteran soldiers, was under the control of the War Office, and any question of founding a similar institution in Scotland should be addressed to that department. Mr. Hodge, in reply to a series of questions on October 21st as to the re-employment of disabled men after the war, said he had circularized all local authorities inviting them to agree to definite arrangements to give a preference, as far as possible, to disabled men in the local public service, and he had approached the large public corporations, such as those connected with tramway undertakings, with the same object. In both directions the appeal had met with ready response. As regards trade and industry at large, certain proposals to provide for the general re-employment of disabled men were under his personal consideration and that of the Minister of Labour, and he hoped that a definite conclusion would be reached very shortly.

Artificial Limbs for Discharged Service Men.—In reply to Sir Montague Barlow, who, on October 21st, asked a question as to delay in obtaining repairs to the artificial limbs of discharged soldiers and sailors, Mr. Hodge said that a recent instruction which enabled local War Pension Committees to authorize repairs (locally where possible) without previous reference to the Ministry, would, it was hoped, obviate delay in minor cases. With regard to major repairs and the readmission of pensioners into limb-fitting centres, the increase in the number of beds at fitting centres from 972 in February, 1918, to 2,196 in October, would enable cases to be more expeditiously dealt with. It had not yet been found possible to standardize limbs, as no specimen brought to the knowledge of the expert advisory council had shown such advantages over any other as to warrant it being made the standard pattern. The promise to issue a spare limb to all cases would, he hoped, be carried out within a reasonable period, but clearly the primary fitting of limbs must be the first consideration.

Regulation 40 D.—The Home Secretary, in reply to Mr. Lees-Smith in the House of Commons on October 17th, said that the enforcement of Regulation 40 D under the Defence of the Realm Act followed on representations from the Dominion Governments. The regulation provided that women arrested might be examined subject to their consent. Down to October 8th there had been 201 prosecutions. Convictions had been obtained in 102 cases, in 51 of which the defendants had pleaded guilty. Three other defendants had been bound over or placed on probation, and six cases were under remand when the return was made. Mr. Lees-Smith submitted that these figures showed that in "nearly one out of every two cases" no conviction had been obtained, and asked whether compensation would be given to the acquitted women who had been subjected to examination. Sir George Cave said that the return showed that the magistrates were very careful and did not convict except in very clear cases. The regulation was being considered by a committee which would report as soon as possible. If it reported for withdrawal, an Order in Council would be required to rescind the regulation.

THE new law raising the status of commissioned officers in the Medical Reserve of the United States army will give ranks in that corps as follows: 2 major-generals, 4 brigadier-generals, 675 colonels, 1,158 lieutenant-colonels, 5,065 majors, 14,374 captains and lieutenants.

THE WAR.

SIR DOUGLAS HAIG'S DISPATCH ON THE MARCH RETREAT.

The dispatch, dated July 20th, of Field Marshal Sir Douglas Haig, Commanding-in-Chief, British Armies in France, issued by the War Office on October 21st, deals with the period from the end of the actions near Cambrai in the first week of December, 1917, to the end of April, 1918, and thus covers the retreat caused by the German thrust which began on March 21st. The concluding paragraphs of the dispatch refer to the enormous amount of additional work thrown upon the different branches of the staff and upon the administrative services and departments, including the evacuation of great masses of stores, hospitals, rolling-stock, non-combatants, labour units, and civilians from the battle area, and the supplying of the troops in constantly changing places with food and ammunition. The work was carried out smoothly and successfully in circumstances of extraordinary difficulty, and there was never any lack of food or ammunition for the troops. The following is the text of the paragraph relating to the medical services:

Much additional work, also under circumstances of unusual difficulty and danger, has necessarily been thrown upon the medical and nursing services. The conduct of the Royal Army Medical Corps and Medical Corps of the Overseas Dominions has again been beyond all praise, while the efficient organization of the medical services as a whole proved itself fully equal to the occasion. I take this opportunity to acknowledge the lasting debt due in this connexion to Lieut.-General Sir A. T. Sloggett, K.C.B., K.C.M.G., K.C.V.O., K.H.S., until recently Director-General of Medical Services, with whom the work of the medical services has so long been identified.

THE ITALIAN FRONT.

In a dispatch from General the Earl of Cavan, commanding the British Forces in Italy, on operations between March 10th and September 14th, 1918, the following brief reference is made to the work of the medical services:

Arrangements for the sick and wounded have been thorough and complete. The difficulties of evacuation by mountain paths and roads were successfully overcome in the action of June 15th. An epidemic of influenza, which appeared to threaten serious diminution of the force at one time, has completely passed away.

PRISONERS OF WAR.

The Hague Agreement.

The terms of agreement entered into between delegates of the British and German Governments concerning the treatment and exchange of combatant prisoners of war and civilians were published last week in a White Paper. In an annex to the final protocol, which is dated July 14th, 1918, the fifth clause runs as follows:

As it was not possible at this conference to arrive at an agreement with regard to the recognition of the persons coming under the designation of medical personnel, both delegations will recommend to their respective Governments that this question should be settled by special agreement.

Among the sixty articles relating to the repatriation and internment of combatants and civilians, and the treatment of prisoners of war, it is declared that wounded and sick, both combatant and civilian, shall have priority over all classes of persons to be transported, and shall be sent by any and every voyage as soon as possible after their repatriation or internment is decided upon. With regard to the disposal of sick and wounded combatant prisoners, it is provided that visits to camps shall be resumed, at intervals of three months, by travelling medical commissions each consisting of two neutral doctors and one doctor of the captor state. The duties of these commissions will be, as heretofore, to ascertain the prisoners eligible for repatriation or for internment in a neutral country by reason of their physical condition. The decisions will be made in accordance with the schedule of disabilities agreed between the belligerent Governments, and prisoners of war suffering from any injury or sickness (except a self-inflicted injury) which falls within the schedule are to be repatriated or interned. Prisoners of war recognized as suffering from curable tuberculosis or malaria, or in whom there is good ground for suspecting tuberculosis, are to be interned in Switzerland; those recognized as suffering from incurable tuberculosis will be repatriated forthwith. The medical authorities concerned are instructed to take a lenient view of cases of nervous debility ("psychasthenia") which come under examination. Where the travelling medical commission forms an adverse decision the reasons for rejection are to be stated in each case. Prisoners of war whose cases are recognized by the medical authorities of the captor state as urgent on account of the serious nature of their injuries or sickness, are to be repatriated or interned at once without waiting for the visit of the travelling commissions. Prisoners of war considered suitable for repatriation or internment by the travelling commissions will be examined again by a commission of control composed of three neutral medical officers and three medical officers of the captor state, whose decision will be final. The agreement as a whole is subject to the approval of the two Governments, to be notified to the Netherlands Government, which in turn will communicate to each the adherence of the other, and the agreement will come into force seven days later. The Netherlands Government will co-operate in any measures necessary for bringing the agreement into operation and for its due execution. Up to the present the German Government has refused to ratify the agreement.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Captain H. A. Culham, C.A.M.C.

Captain H. A. Culham, Canadian Army Medical Corps, was reported as killed in action, in the casualty list published on October 16th.

Captain K. Elmes, R.A.M.C.

Captain King Elmes, R.A.M.C., was reported as killed in action, in the casualty list published on October 14th. He took the diplomas of L.R.C.P.and S.I. in 1916, and at once took a temporary commission in the R.A.M.C., being promoted to captain after a year's service. He resided at New Ross, and was attached to the Royal Fusiliers, City of London Regiment, when killed.

Captain W. S. B. Hay, R.A.M.C.

Captain William Stevenson Brown Hay, R.A.M.C., was killed in action on October 6th. He was the son of the late Mr. George C. Hay of Belfast, and was educated at the Methodist College there, and at Belfast University, where he graduated M.B., B.Ch., and B.A.O. in 1914, subsequently acting as demonstrator of anatomy, till he took a temporary commission as lieutenant in the R.A.M.C. on May 25th, 1915. He went to France in October, 1915, was promoted to captain after a year's service, and was serving with the Royal Field Artillery when killed.

Captain H. E. Kirkland, M.C., A.A.M.C.

Captain Hugh Edward Kirkland, M.C., Australian Army Medical Corps, was killed in action on October 3rd. He was the younger and only surviving son of the late Dr. Hugh Kirkland of Darvel, Lithgow, New South Wales. He received the Military Cross on January 18th, 1918.

Captain J. M. McLaggan, M.C., R.A.M.C.

Captain James Murray McLaggan, M.C., R.A.M.C., was killed in action on October 4th, aged 27. He was the elder son of Mr. James McLaggan of Torphins, Aberdeenshire, and was educated at Aberdeen University, where he graduated M.B. and Ch.B. in 1913. He joined the R.A.M.C. as a temporary lieutenant on August 22nd, 1914, was promoted to captain after a year's service, and received the Military Cross on November 4th, 1915. He was attached to the Royal Fusiliers, City of London Regiment, when killed.

Captain A. Ross, C.A.M.C.

Captain A. Ross, Canadian Army Medical Corps, was reported as killed in action, in the casualty list published on October 14th.

Captain J. A. Stanley, R.A.M.C.

Captain J. A. Stanley, R.A.M.C., was reported as killed in action, in the casualty list published on October 14th.

He first joined the Canadian Army Medical Corps, was appointed a temporary lieutenant in the R.A.M.C. in the middle of 1916, and promoted to captain on completion of a year's service. He was attached to the Royal Warwickshire Regiment when killed.

Lieutenant D. G. K. Garrett, R.A.M.C.

Lieutenant D. G. K. Garrett, R.A.M.C., was reported killed in action, in the casualty list published on October 17th. He had only qualified within the last year, and immediately afterwards took a temporary commission as lieutenant in the R.A.M.C.

Lost at Sea.

Lieut.-Colonel E. F. H. Dobson, I.M.S.

Lieut.-Colonel Edward Francis Horatio Dobson, Bengal Medical Service (ret.), was lost on the Japanese ss. *Hirano Maru*, torpedoed and sunk by a German submarine, with great loss of life, off the north coast of Ireland, on the way to South Africa, on October 5th. He was educated at Middlesex Hospital, and at the Universities of Edinburgh and Aberdeen, and graduated at the latter M.B. and C.M. in 1878. Entering the I.M.S. as surgeon on October 2nd, 1880, he became surgeon-major on October 2nd, 1892, lieut.-colonel on October 2nd, 1900, was placed on the selected list on November 21st, 1905, and retired on November 27th, 1910. After some years of military duty, he was appointed civil surgeon of Dhubri, in Assam, and while stationed there was the first to draw attention to the fact that the anaemia so prevalent among tea garden coolies was in great part due to intestinal parasites. He was subsequently appointed Protector of Emigrants in Calcutta, and later, reverting to military duty, spent his last years of service as medical storekeeper in Calcutta.

Dr. T. R. Beale-Browne, W.A.M.S.

Dr. Thomas Richard Beale-Browne, of the West African Medical Staff, was lost in the ss. *Burutu*, sunk in a collision on October 3rd. He was the eldest son of Lieut.-Colonel G. E. Beale-Browne of Dowdeswell House, Gloucestershire, and was educated at Guy's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1901. After acting as assistant medical officer of Northampton County Asylum he joined the W.A.M.S. He had served on the Anglo-German Boundary Commission, which demarcated the frontier, from Yola to Cross River, between the British and the then German colonies in West Africa.

Died on Service.

Captain G. Finch, R.A.M.C.(T.F.).

Captain George Finch, R.A.M.C.(T.F.), died of pleuro-pneumonia in the officers' hospital, Basra, on October 8th. He was educated at Leeds University and at St. Thomas's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1905, and the D.P.H.Oxon. in 1910. After filling the appointments of assistant house-surgeon at the Royal Westminster Ophthalmic Hospital, of house-physician at the Brompton Consumption Hospital, and of assistant school medical officer to the East Sussex County Council, he took up the post of assistant to the county medical officer of health for East Suffolk. On August 11th, 1914, a week after war was declared, he took a commission as lieutenant and medical officer in the 3rd East Anglian (Howitzer) Brigade of Royal Field Artillery (Territorial), and was transferred to the 3rd London General Hospital as captain on April 1st, 1915.

Captain E. H. Glenny, R.A.M.C.

Captain Ernest Howard Glenny, R.A.M.C., died of pneumonia on active service on October 9th. He was educated at St. Bartholomew's Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1917, and soon after joined the Special Reserve of the R.A.M.C. as lieutenant, being promoted to captain after a year's service.

Dr. C. F. W. Watson, W.A.M.S.

Dr. Cecil Francis William Watson, West African Medical Staff, died of influenza at Accra, West Africa, on October 12th, aged 43. He was the last surviving son of the late Rev. A. W. Watson, Vicar of Churt, Surrey, was educated at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1899, also the Liverpool D.T.M. in 1906, and the D.P.H. of the Irish Colleges in 1909. After acting as assistant house-surgeon of Scarborough Hospital he entered the W.A.M.S., in which he rose to be senior medical officer in Northern Nigeria, and had recently been appointed deputy principal medical officer of the Gold Coast.

Wounded.

Lieut.-Colonel M. R. Taylor, D.S.O., R.A.M.C.(S.R.).
Major J. Vallance, R.A.M.C.(S.R.).
Captain F. S. Bedale, M.C., R.A.M.C.(T.F.).
Captain F. B. Day, Canadian A.M.C.
Captain J. C. Dunn, D.S.O., M.C., D.C.M., R.A.M.C. (temporary).
Captain H. M. Joseph, R.A.M.C. (temporary).
Captain A. L. MacLean, Australian A.M.C.
Captain R. F. Matters, Australian A.M.C.
Captain I. D. Stubbs, R.A.M.C.(T.F.).
Captain B. M. Tuke, M.C., R.A.M.C.(S.R.).
Captain H. E. B. White, R.A.M.C.(S.R.).
Captain A. Wilson, R.A.M.C.
Captain H. G. Young, D.S.O., Canadian A.M.C.
Lieutenant W. Hickey, R.A.M.C. (temporary).
Lieutenant H. G. D. Mathur, I.M.S. (temporary).
Lieutenant A. C. Paterson, R.A.M.C. (temporary).
Captain and Quartermaster E. Caple, R.A.M.C.(T.F.)

Deaths of Sons of Medical Men.

Bennett, Risdon M., Lieutenant Royal Air Force, elder son of Dr. Bennett of Beckenham, killed September 28th, aged 18.

Clarke, Richard Stanley, Second Lieutenant Machine Gun Corps, fourth son of Dr. Thomas Clarke of Liverpool, killed October 4th.

Comley, E. C., Lieutenant Royal Munster Fusiliers, fourth son of the late Dr. J. Muspratt Comley of Calcutta, accidentally killed on September 27th. He got his commission in the 4th Extra Reserve Battalion of that regiment on May 23rd, 1915.

Cotton, Robert Hugh Alban, Priest, B.A. of St. John's College, Cambridge, Second Lieutenant Army Service Corps, youngest son of Dr. Charles Cotton of Briarfield, Canterbury, died in hospital abroad on October 12th, aged 29.

Daunt, Barry, Second Lieutenant Royal Sussex Regiment, killed in action. The eldest son of Captain William Daunt, R.A.M.C., Hastings.

Halford, E. T., Lieutenant Royal Engineers, son of Dr. Edward Halford, died on October 10th, at Wellesley House, Wellington Lines, Aldershot.

Hunter, William Yeates, Major Canadian Infantry, late of the 8th King's Liverpool Regiment, son of the late Dr. William Hunter of Margate, killed September 28th.

Maurice, John Capel, Second Lieutenant Royal Berkshire Regiment, youngest son of Brevet Colonel William James Maurice, R.A.M.C.(T.F.), of Reading, killed October 7th, aged 19.

Mosse, William Oliver Matless, Colonel Royal Munster Fusiliers, son of the late Deputy Surgeon-General C. B. Mosse, C.B., A.M.S., lost, aged 58, in R.M.S. *Leinster*, torpedoed and sunk by a German submarine soon after leaving Holyhead on October 10th. His wife, who was travelling with him, was also lost. He was born on March 3rd, 1860, got his commission on October 23rd, 1880; soon after joined the Indian army, attained the rank of colonel on July 30th, 1907, commanded the 114th Marathas, and retired on October 23rd, 1912. He served in the Sudan in the Dongola campaign of 1896, and received the medal therefor.

Quayle, R. C., Second Lieutenant Leicestershire Regiment, youngest son of Colonel W. A. Quayle, I.M.S.(ret.), of Blackcauseway, Strangford, killed October 4th, aged 20.

Ricketts, James Stuart, Second Lieutenant R.F.A., died on October 5th in a French general hospital from wounds received in action on August 29th, eldest son of the late Dr. T. F. Ricketts, in his twenty-fourth year. He was educated at Arundel, and passed into Woolwich with a view to joining the Royal Engineers, but was prevented from doing so by illness. He then became a medical student at King's College. Having recovered his health, he volunteered for service in the air corps, but, failing to pass the final health standard test, he took a cadet nominationship from his old school, and obtained his commission early this year. He proceeded to the front in the early summer.

Spence, Gilbert Chisholm Drever, Captain Highland Light Infantry, youngest son of the late Dr. Spence of Burntisland, killed October 1st, aged 22. He got his first commission on May 12th, 1915.

Travers-Smith, Robert Montgomery, late Second Lieutenant Royal Sussex Regiment, only son of the late Dr. V. E. Travers-Smith, lost, aged 21, on his way to South Africa, in the Japanese ss. *Hirano Maru*, torpedoed and sunk by a German submarine off the Irish coast on October 5th.

Weiss, Hubert Foveaux, Second Lieutenant, only son of Mr. Hubert Foveaux Weiss, F.R.C.S., of Putney, killed September 3rd.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE following is a continuation of the list published in our last issue of awards to medical officers in recognition of their conspicuous gallantry and devotion to duty in the field:

Military Cross.

Captain (acting Major) Galvin Alexander Elmslie Argo, R.A.M.C.

While in charge of a light section of a cavalry field ambulance during an attack he performed most useful work. His brigade sustained considerable casualties, and he organized a stretcher party and rescued several wounded, though the ground was being shelled at the time. He showed great coolness and devotion to duty.

Captain Isaac Manly Barrow, A.A.M.C.

Under heavy fire he dressed wounded in an open trench, and when the battalion attacked he advanced with them and established his dressing station behind the front line. When two of his bearers were wounded carrying a casualty he dashed forward under direct machine-gun fire to their assistance. Later, he was severely wounded. Throughout the operations he showed conspicuous gallantry and devotion to duty.

Captain George Albert Blumer, A.A.M.C.

When the regimental aid post was heavily shelled, a direct hit causing casualties amongst the staff, he succeeded, single-handed, in getting the wounded away, and attended to many cases in the area of the bombardment. Throughout the period his courage and determination saved many lives.

Temporary Captain Stanley Arthur Bull, R.A.M.C.

He helped under continuous shell fire to dig out several men who had been wounded and buried. He attended men under conditions which demanded considerable nerve and determination.

Captain John Victor Livingstone Grant, R.A.M.C.(S.R.).

His ambulance was attacked on the march by enemy aeroplanes. A large ammunition dump at the side of the road was exploded, igniting a lorry loaded with petrol, and the fire spread to the ambulance wagons. He immediately collected men and for two hours worked coolly and fearlessly near the exploding dump, under repeated bombing attacks from aircraft, tending and removing the wounded.

Captain Robert Lawson, R.A.M.C.

During several days' operations he worked continuously at high pressure under heavy shell fire. His energy and care for the wounded under the most difficult circumstances were beyond all praise, and he showed great gallantry and devotion to duty in organizing his bearers and collecting wounded from a heavily-shelled area, thereby saving many lives.

Captain Benjamin Lyon, C.A.M.C.

After a charge by two squadrons up a road this officer followed on foot and attended and evacuated the wounded under heavy artillery and machine-gun fire, remaining there until all the wounded were brought in.

Temporary Captain Henry Leslie Messenger, R.A.M.C.

While an exceptionally heavy shoot was being carried out on a battery, he crossed 400 yards in the open under heavy barrage to attend to a wounded man. On his way he was knocked down by an exploding shell, but in spite of this he proceeded with his duties. He showed great grit and determination.

Captain Walter James Ellis Mingie, C.A.M.C.

During an attack he maintained close touch with all the regiments, and under heavy shell and machine-gun fire he evacuated all casualties with wonderful rapidity. Hearing that an officer was seriously wounded in the front line trench, he immediately went forward and succeeded in dressing and removing him. He showed the greatest coolness and resource throughout.

Temporary Captain Stanley Andrew Wollaston Munro, R.A.M.C.

He organized his advanced dressing station and stretcher-bearing parties under very difficult circumstances, and when it was found necessary to withdraw the battalion to the original position, he reorganized the stretcher-bearers and himself took up a post in the front line where he could better render assistance to the wounded. He also went and bandaged a wounded man who was lying in a position that was being shelled, and had him conveyed to safety. Throughout his cheerfulness, energy, and disregard for his own personal safety had a most inspiring effect on all.

Temporary Captain Andrew Neilson, R.A.M.C.

When a number of wounded were left after a cavalry charge he took two light ambulances and a bearer party right up to the front line and cleared five wounded lying out in front. This was done under continuous machine-gun fire directed on the road in the dark. He showed great courage and initiative.

Temporary Lieutenant Wilfred Paton Philip, R.A.M.C.

During an attack he showed great gallantry in attending to a large number of wounded. He three times had to move his dressing station on account of shell fire, but stuck to his duties with great determination, and saved many lives.

Temporary Captain (acting Major) Clive Justin Hicks Sharp, R.A.M.C.

He most ably supervised the evacuation of wounded during a rapid advance. Moreover, on hearing that one of the advanced dressing stations had been hit by a bomb, he at once went to the spot and helped with the wounded, and his coolness and energy were of the greatest assistance in reorganizing the dressing station under shell fire, so that the evacuation of the wounded proceeded uninterruptedly.

Temporary Captain John Patrick Shaw, R.A.M.C.

Under severe enemy shelling he carried on his work in the open, his aid post affording neither space nor protection. He did invaluable service under most trying circumstances, as his was the collection station both for his own battalion and for the brigade front. He showed magnificent energy and devotion to duty.

Captain (acting Major) James Martin Smith, R.A.M.C.

When an enemy shell exploded an ammunition dump near his dressing station, he rushed to the spot, organized a rescue party regardless of exploding shells, and continued to attend to the wounded until all were removed to safety. He saved many lives by his gallant conduct.

Temporary Captain Andrew William Palethorpe Todd, R.A.M.C.

During an attack this officer, who was stationed at the advanced collecting post, behaved with great gallantry under the heavy artillery fire to which his post was subjected at frequent intervals during the day. He dressed and attended to large numbers of wounded men with unremitting devotion to duty, and also went forward under heavy fire with stretcher-bearers to the aid posts, and by his able leadership rendered valuable service in evacuating the wounded.

Military Medal.

Dr. Phoebe Chapple, R.A.M.C., attached Q.M.A.A.C., has been awarded the Military Medal "for gallantry and devotion to duty during an enemy air raid. While the raid was in progress Dr. Chapple attended to the needs of the wounded regardless of her own safety."

The Sultan of Egypt has conferred the Order of the Nile (Second Class) upon Lieut.-Colonel Sir John Godfrey Rogers, K.C.M.G., D.S.O., in recognition of services rendered under the auspices of the British Red Cross Society during the war.

Dr. Charles G. Jarvis has received permission to wear the Cross of Chevalier of the Legion of Honour conferred upon him by the President of the French Republic in recognition of his services as head of the Voluntary Hospital No. 4A, Paris.

Corrections.

In the list of honours awarded for conspicuous gallantry and devotion to duty in the field, printed in our last issue, temporary Captain W. G. Cobb, R.A.M.C., and temporary Captain (acting Major) John Greene, M.C., R.A.M.C., were incorrectly stated to have received a bar to the D.S.O. These two officers, the descriptions of whose services in action were given on p. 446, have been awarded the D.S.O.

The King of Serbia has conferred the Order of St. Sava (4th Class) upon Lieut.-Colonel Charles Henry Straton and not the Order of the White Eagle (4th Class) as announced in the *London Gazette* of September 10th (BRITISH MEDICAL JOURNAL, September 21st, p. 331).

NOTES.

WINTER CAMPAIGN IN THE ARCTIC.

SPECIAL arrangements have been made by the War Office for the feeding and clothing of the force under General Poole on the Archangel and Murman fronts within the Arctic circle. A special ration scale has been drawn up and arrangements, which it is believed will be satisfactory, made for supply throughout the winter. The kit of special clothing issued to each man has been approved by Sir Ernest Shackleton. It includes a skin-lined sleeping bag, a sheepskin coat, fur cap, leather jerkin, cardigan, muffler, mittens, gloves, snow glasses, and special boots and stockings as well as warm underclothing. The medical provision made for the troops has been favourably reported on by a special officer.

Correspondence.

A NATIONAL SCHOOL OF MEDICINE FOR WALES.

SIR,—The final report of the Commissioners, under the vice-chairmanship of Viscount Haldane, on University Education in Wales, has been printed and circulated. The report as a whole is not referred to in this letter, as it concerns departments and questions about which I am only indirectly concerned; that portion of the report which bears upon the school of medicine in Cardiff will alone be discussed here. Among the Commissioners is the name of Sir William Osler, Bt., and that alone stands for much, for Sir William Osler has a first-hand knowledge of the methods of government and of teaching in vogue both in Germany, in America, and in this country.

The Commissioners, crystallizing ideas that have long been fermenting, propose in their report to make the school a Welsh school, and, following a suggestion of Sir Isambard Owen, whose work in connexion with the school is so well known, make it a constituent college of the University of Wales.

It is proposed that the school of medicine shall be separated from the University College of South Wales and Monmouthshire, of which it has hitherto been a department; a similar plan has, I believe, worked satisfactorily

in the case of the College of Medicine at Newcastle. The following passage occurs in the report:

We consider that the right way to meet the reasonable claims of the Cardiff University College is not to bring largely within its administration an institution whose government it is desired to place on a broad national basis, and for which separate financial provision seems advisable, but to give it—the University College of South Wales and Monmouthshire—a very substantial representation on the governing body of that institution—the Welsh School of Medicine.

It is proposed that the council of the Welsh school of medicine should consist of thirty-two members, of whom ten are to be appointed by the University College, six by the King Edward VII Hospital, three by the Senate of the Medical College, two by the University of Wales, and two by each of the colleges at Aberystwyth, Bangor, and the University College of Swansea (if and when constituted), etc.

This appears to me to be a very fair and equitable arrangement, taking it as a whole. The medical school, although partially separated from, is still joined to the University College, inasmuch as nearly one-third of its council are elected by the council of University College. In this way, too, the pressing claims of Glamorganshire and Monmouthshire can be satisfied, for the council can easily arrange that, say, two from each of these important shires should be elected; Glamorganshire and Monmouthshire are represented at present by at least four members each on the college council.

The number of medical men upon the council of the medical school may be far from large, for we must remember that all the members who represent Aberystwyth, Bangor, Swansea, those members elected by the university court, the college council, and even those elected by King Edward VII Hospital, need not of necessity be medical men. It will be seen, then, that the council of the new medical school may not consist of a moiety of medical men, and there is no fear of anticipating a preponderating medical element even in a purely medical school.

There is in Wales some dissatisfaction, which is caused by this proposed partial separation, and there are many who wish to see the council of the University College of South Wales and Monmouthshire governing the destiny of the medical school in the future as in the past. It should be pointed out that the present college council consists of nearly sixty members, of which only six are medical men —about one-tenth. It appears to me inadvisable to have such a body supreme in our new medical school, and I heartily endorse the line of action of the Commissioners in this respect.

As soon as the war is over the college council will have its hands full if we are not to be caught napping again. The raising of money, the erection of new buildings, the foundation of new departments—especially of science—will fill its hands to overflowing. It will then be glad that the Welsh medical school is in other hands.—I am, etc.,

JOHN BERRY HAYCRAFT, M.D., D.Sc., F.R.S.E.,
Professor of Physiology, University College, Cardiff.

October 21st.

THE ADMINISTRATION OF ANAESTHETICS TO SOLDIERS.

SIR,—It is pleasing to note that other anaesthetists are beginning to appreciate, if somewhat tardily, the advantages of ethyl chloride as an agent in the induction of ether or chloroform anaesthesia. For years I have preached and practised this method, which I have now used in many thousands of cases. In my *Guide to the Administration of Ethyl Chloride* (first edition, 1905) I described under the heading of the "CE-ethyl chloride-chloroform sequence" my method, and about the same time read a paper before the Society of Anaesthetists on the subject. In those days "open ether" had not yet arrived, but the method is equally applicable to it. Some years later Dr. Hornabrook of Melbourne independently discovered the value of ethyl chloride as an inducing agent, and communicated his method, which differs in some particulars from mine, in a paper entitled "Open ethyl chloride . . . as a preliminary to open ether."

In his article to the JOURNAL (September 28th, p. 343) Captain Mills now advocates the use of ethyl chloride as a preliminary in the administration of anaesthetics to soldiers. Why only soldiers? The results are infinitely more satisfactory, like those of all other anaesthetics, in a more delicate type of patient. The article, however, comes at an opportune moment. Ethyl chloride is not an absolute panacea for all the worries of the anaesthetist in the early stages of anaesthesia. Complications will occasionally arise, especially respiratory ones of a spasmodic nature. Of late in my practice these have been of more frequent occurrence, and I have sometimes pondered as to whether a fault might lie with the method, or possibly be found in a deterioration of quality in "wartime" ethyl chloride. However, Captain Mills's article reassures me. The same trouble is more marked in other methods with a certain type of patient which figures largely in all our practices just now. It is not the ethyl chloride, or any impurities in it, which is the cause of our troubles, but the type of patient which is particularly difficult.

I venture on two criticisms. In my view ethyl chloride is in this connexion much better given by the semi-open than by the closed method. My scheme for robust young adults is as follows: CE on mask up to about half an ounce (first stage, time about one minute), then ethyl chloride sprayed on, 5 c.cm. to 7 c.cm., and all covered in with a fourfold porringer cloth till unconsciousness is produced and struggling has ceased (second stage, time one to two minutes). The third stage simply consists in removing the towel and continuing the anaesthesia with ether or chloroform on the same mask or in any other apparatus preferred.

Captain Mills advocates the administration of a preliminary injection of $\frac{1}{3}$ gr. morphine. My experience is that $\frac{1}{6}$ gr. is too much for chloroform and not enough for open ether.—I am, etc.,

London, W., Oct. 4th. G. A. H. BARTON.

SIR,—The article by Dr. Arthur Mills in your issue of September 28th is interesting; but it seems to me there is infinitely more need, at the present time, to teach the rudiments of anaesthetic administration than to advocate new refinements.

Dr. Mills gives as the usual signs of anaesthesia, under ethyl chloride—"fixed eyeballs, dilated pupils, and insensitive corneae." Insensitive corneae is surely a sign no anaesthetist ought to look for. Why should the delicate cornea be unnecessarily prodded? I have given many anaesthetics weekly at a large hospital in Exeter for the last three and a half years, and I have not touched the cornea once in a year. If the palpebral reaction is not enough to let the anaesthetist know where he is, he is unfit to look for the corneal.

Dr. Mills is "convinced that the previous administration of $\frac{1}{3}$ gr. morphine and $\frac{1}{100}$ gr. atropine is of considerable value." This puts out of court the second sign of anaesthesia given by Dr. Mills, namely, "dilated pupils," since morphine prevents their dilating. What are learners to do when of three signs given for recognising anaesthesia one should not be sought for and another should be masked by morphine? When $\frac{1}{3}$ gr. morphine is administered the pupil becomes and remains contracted during at least the first part of an operation; thus one of the most useful guides to careful and scientific administration, of chloroform at least, is lost. Without morphine you can, if you will, reduce the chloroform till the pupil dilates, and yet have time to save the patient coming round. You can, on the other hand, increase it till the pupil dilates, and warns you of danger, and yet have time to stop the chloroform and wait, without anxiety, till the pupil contracts again. With morphine you have no comparatively safe limits. The pupil warns you dangerously late. You may give too much or too little chloroform easily, unless you have considerable experience, and you convert an easy duty into a complicated one, for no adequate advantage. In the absence of morphine I have never had any trouble or anxiety, and in its presence I have on one or two occasions had both; and moreover, the pupil reaction helps precision in administration.

Soldiers are excellent subjects for anaesthetics, smokers and drunkards included. Bronchitics are rare. Chloroform by the open method suits them admirably. I use on the average two ounces an hour, whether for one patient or three, including the induction of anaesthesia. Generally there is little or no after-sickness. The mask should be held three or four inches above the face at first, and approached about an inch per minute. If excitation or

struggling occurs it is soon over, though sometimes it wants a little management, and in from seven to ten minutes from the start the patient is ready.

The anaesthetic advocated by Dr. Silk is also excellent—chloroform 1 part and ether 15 parts—to be used when a patient is under. It goes well with morphine and atropine, as it is unnecessary to see the face or eyes. It is, however, uninteresting, as the mixture is mechanically dropped on the mask from the beginning till the end of the operation, and the respirations, which alone are noticed, go on steadily, in the absence of bronchial irritability, all the time. It causes more after-sickness, however, than chloroform.

Dr. Mills's new method of inducing anaesthesia seems scarcely wanted until the elements of straightforward and efficient administration of anaesthetics are better known and applied.—I am, etc.,

Clyst St. George, Devon, Oct. 2nd. D. W. SAMWAYS.

HEAT-STROKE AND MALIGNANT MALARIA.

SIR,—With reference to Captain C. E. Milner's article on heat-stroke and malignant malaria in the JOURNAL of June 8th, 1918 (p. 638), I wish to state that Dr. Arthur Powell, police surgeon of this city and formerly of Assam, drew my attention fully fifteen years ago to the almost invariable presence of malignant tertian parasites in cases of heat-stroke. I have corroborated Dr. Powell's statement in the cases of heat-stroke I have seen since then, and also drew attention to the matter in my report last year as consulting physician to the Waziristan Field Force. I would, however, not go quite so far as Captain Milner does in saying that heat-stroke is an episode of malignant malaria, and that the association of the two is invariable.—I am, etc.,

C. H. L. MEYER,
Colonel I.M.S.,
Consulting Physician, War Hospitals,
Bombay, Sept. 3rd. Southern Command, India.

MEDICINE IN PARLIAMENT—MEDICAL RECONSTRUCTION.

SIR,—I heartily endorse Dr. Barrie Taylor's letter in the JOURNAL of October 19th. Dr. Addison is in no way in a position to judge what the general practitioners should be paid or what they should do. Before he was a politician he was a teacher of anatomy, and outside the dissecting room he has no right to give expert advice on medical matters.

For the salvation of the profession, let every medical man support the British Medical Association, as the Association is the only body which has any organization for obtaining the opinion of the majority of general practitioners. If politicians want votes, let them support a Ministry of Justice with free legal advice for the insured.

I suggest the British Medical Association's policy should be to oppose absolutely any State scheme which is likely to prejudice in any way the general practitioner's practice—that is, his business capital—or which includes free medical attention to any household earning over £200 per year.—I am, etc.,

London, W., Oct. 21st. E. H. WALKER, M.B., B.S.

BOOT HEELS AS A CAUSE OF FLAT-FOOT, ETC.

SIR,—I did not suggest, as Dr. Ellis seems to imply, that the tibialis anticus forms the arch, but that it supports it. This muscle dorsiflexes and inverts the foot, and during both these actions it lifts the crown of the arch higher off the ground. The peroneus longus, as Dr. Ellis admits, draws the crown of the arch downwards. Therefore, as the tibialis anticus is idle, the peroneus longus pulling the crown of arch downwards, and the body weight resting on it, these three influences combined tend to lower the arch. The elasticity of the arch depends not merely on the actual height of the curve, but on all the muscles concerned being allowed to act naturally and completely, one set of muscles balancing the other. Cycling and tiptoe exercises develop the extensors of the foot, without giving the dorsiflexors a fair amount of work. In infantile paralysis, with the tibialis anticus out of action, the arch is not of much use, just as the grasp of the hand is feeble in cases of wrist-drop, although the flexors are unimpaired. Dr. Ellis would seem to have misapplied Sir Thomas Watson's and Sir William Turner's maxims by overlooking the influence of boot heels, and specially exercising only one group of muscles. Although civilized races have allowed the body weight to rest on the crown of the arch for 300 years, this was not Nature's intention. No advantage is derived from resting on the arch when standing; it is sufficient that the arch should be present and available for immediate use when required. The heels and outer sides of the soles of feet provide sufficient foundation to support the body, and no weight need rest on the ball of the foot when the feet are bare. When the heels are raised, say one inch, from the ground, the balance is disturbed and the weight is distributed between the heels and the front parts of the feet—that is, it falls on the arch, the outer sides of the soles being no longer in contact with the ground. With heel-less boots the increased range of action of the calf muscles makes them more powerful and elastic, and this also helps to restore the arch.

The fatigue in walking with heeled boots is mostly due to the fact that, as the tibialis anticus is idle, the knee of the advancing leg must be lifted to let one foot pass the other, whereas, if the foot were dorsiflexed by the tibialis anticus, only the weight of the front part of foot would have to be lifted, instead of the thigh, leg and foot. This explains the supposed heaviness of an artificial leg. The wearer has to circumduct it or tilt the pelvis to get the artificial foot past the other. If his boots were heelless, the artificial ankle jointed, and a weak spring fitted to represent the tibialis anticus, the spring would dorsiflex the foot in passing the sound foot and the weight of the body would put the spring out of action when the artificial foot again reached the ground.—I am, etc.,

SYLVESTER D. FAIRWEATHER,
Kenmore, Perthshire, Oct. 6th. Captain R.A.M.C.

THE LABOURER AND HIS HIRE.

SIR,—I notice that a fresh appeal is being made, both in Ireland and England, for medical men for the army. Those who come up now will, as in no other branch of the service, receive the same pay as those who have borne the heat and burden of the day. The R.A.M.C. is practically the only corps wherein a man has practically no expectation of increased remuneration after three or four years' active service. Is it too late to suggest that the only increase in pay since 1914—namely, children's allowance—should no longer be halved because of the fact that we are on consolidated pay?—I am, etc.,

B.E.F., Oct. 13th. TEMPORARY CAPTAIN R.A.M.C.

THE PROPOSED MINISTRY OF HEALTH.

SIR,—I wish through the JOURNAL to enter my protest, as a member of the Metropolitan Counties Branch, against the action of the chairman and those responsible for the management of yesterday's meeting at the Toplady Hall, in refusing to admit any amendments to the resolutions.

Probably every one present agreed with the first, second, and fourth resolutions, but many present would have liked to have seen some amendment put to the test as regards the latter part of No. 3, in the direction of an agreement "to carefully examine and consider without prejudice any scheme put forward for a State service."

By refusing amendments the meeting was turned into a farce, as we did not go there to be spoon-fed with any resolution but to have the opportunity of expressing by amendment our desire for a cautious policy; not simply one of barring the door. By their action those responsible are virtually doing their best to defeat their fourth resolution.—I am, etc.,

Watford, Oct. 16th. WM. P. PORTER.

SIR MARC ARMAND RUFFER, K.C.M.G., president of the Quarantine Board of Egypt, and vice-president of the Municipality of Alexandria, who was drowned when the transport *Arcadian* was torpedoed, left estate of the value of £21,239.

THE Italian tuberculosis unit of the American Red Cross, under the supervision of Colonel Robert Perkins, Commissioner of the Society for Italy, will conduct a campaign in that country for the stamping out of tuberculosis. Among the members of the unit, which consists of sixty persons, are many of the best known specialists of America.

Medical News.

MR. JOHN COUPER, F.R.C.S., consulting surgeon, London Hospital, left estate of the value of £178,894, of which £178,135 is net personalty.

SIR MALCOLM MORRIS, K.C.V.O., will open the winter session of the Tuberculosis Society with an introductory address on past and future of the fight against tuberculosis, on Monday, October 28th, at 8 p.m., at the house of the Royal Society of Medicine, 1, Wimpole Street, London, W. The meeting is open to all practitioners of medicine.

AT the first meeting of the Central Midwives Board for Ireland, held at the office of the Local Government Board for Ireland, the following members were present: Sir W. J. Smyly, Sir J. W. Byers, Dr. E. Coey Bigger, Professor H. Corby, Dr. H. T. Warnock, Mrs. M. Blunden, Miss Annie Michie, Miss J. H. Kelly, Miss Genevieve O'Carroll. On the proposition of Sir W. J. Smyly, seconded by Professor Corby, and supported by Sir J. W. Byers, Dr. E. Coey Bigger was unanimously elected chairman. On the proposition of Dr. Warnock, seconded by Sir W. J. Smyly, Sir A. J. Horne was unanimously elected deputy chairman. Mr. J. E. Devlin was requested to undertake the duties of secretary. The Board appointed a Finance Committee and also a committee to draw up the rules and regulations to be submitted to the Board at its meeting on October 31st.

SIR JOHN TWEEDY, LL.D., F.R.C.S., has been re-elected president of the Medical Defence Union; Dr. Gunton Alderton, honorary treasurer; and Mr. A. G. Bateman and Mr. W. E. Hempson, general secretary and solicitor respectively. Surgeon-Commander C. T. Baxter, R.N., and Surgeon-Lieutenant-Commander H. B. Hill, R.N., have been made vice-presidents as representatives of the Medical Service R.N. The sister service has been well represented for some years. At the annual general meeting on September 19th the annual report was presented and adopted, and the usual statutory resolutions passed unanimously. The President reported that the work of the Union had greatly increased owing to the war; its services have been sought and greatly appreciated by members on active service who required advice and assistance in matters relating to military appointments and civil practice.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on October 17th the degree of Doctor of Medicine was conferred, in absence, on Treffry O. Thompson.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on October 18th the following medical degrees were conferred:

M.D.—*J. A. Venning, C. L. Gimblett.
M.B., B.CH.—I. de B. Daly.
M.B.—*C. W. Bowle, *H. G. Rice
B.CH.—*S. Riddiough, *A. H. Pearce.

*Admitted by proxy.

UNIVERSITY OF LONDON.

King's College Hospital Medical School.—The University Entrance Scholarship in Anatomy and Physiology (value £50) has been awarded to Miss A. M. Freeman.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

DR. R. MCKENZIE JOHNSTON has been re-elected president of the College for the ensuing year.

The following gentlemen, having passed the requisite examinations, have been admitted Fellows:

T. H. W. Alexander, J. M. Beyers, E. S. Brentnall, F. D. Cairns, H. L. H. Lim, T. R. G. Melrose, G. Robertson, C. M. Rolston, B. T. Rose, T. H. Sanderson-Wells, J. Z. Truter, W. R. E. Unthank, B. P. Varma.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

THIRD EXAMINATION.—J. Stevenson, J. R. McCubbing, Agnes M. Hill, T. Poole, V. K. Paramanayogam, H. A. Newton, D. A. Dias, J. S. A. Rogers, W. G. Carew. *Pathology:* H. R. Fisher. *Materia Medica:* Alexandra M. Limont, P. F. Fairley.

FINAL EXAMINATION.—T. T. Read, J. W. Gaston, Rebecca Goodman, G. T. G. Boyce, D. A. Walpola, Anup Singh Narula, Apcar Galustian, S. H. Meiring, J. B. Bourke, A. S. Hughes, F. D. Yourell. *Medicine:* W. Gibb, V. A. Rankin, Krishna Abaji Deodhar. *Surgery:* V. A. Rankin. *Midwifery:* T. Hardie, W. Gibb. *Medical Jurisprudence:* A. F. Caddell, M. H. Carleton, J. M. A. McVey, A. F. Brigmen, J. Stevenson, T. Poole.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Retention Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

AN additional medical referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 7, to be attached more particularly to the Birkenhead and Runcorn County Courts, is to be appointed; the referee must reside or in close proximity to Birkenhead. Applications to the Private Secretary, Home Office, before November 7th.

THE MEDICAL SERVICE, R.N.

A MEDICAL OFFICER, R.N., writes to express his dissent from the opinion expressed last week to the effect that the change in titles and uniform sanctioned by the Board of Admiralty will give satisfaction and tend to popularize the service. He does not think that the desired type of medical officer will be attracted by the change in the uniform, or by the compound titles, which he agrees are clumsy. The army, he says, long ago found out the stupidity of double titles.

BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

AT the meeting of the Executive Committee of the Fund on October 21st it was decided to send to Belgium £400 a month until the end of the year. Last August Mr. Ernest P. Bicknell, American Red Cross Commissioner for Belgium, announced the intention of that body to contribute £[illegible] monthly and asked to be kept informed of the progress of the fund. A statement of the activities of the fund and its existing position having been forwarded, a letter was received from the American Red Cross confirming the subsidy of £[illegible] a month to the fund until the end of the year, and alluding to the possibility of its continuance for a longer period. The Committee, in acknowledging this munificent gift, expressed the confident anticipation that the British medical and pharmacist professions would continue to contribute their share to the fund. Sir Rickman Godlee, who was in the chair, said that it was understood that the local Belgian committees would continue to act in the respective territory, although the need there would doubtless not be so urgent as in the parts of Belgium still occupied. An audited cash statement for the period December 1st, 1917, to August 31st, 1918, presented by the honorary treasurer (Dr. H. A. Des Vœux, 14, Buckingham Gate, S.W.) showed that £3,924 had been expended in relief, and £[illegible] administration. The second appeal at the New Year brought in about £963; the circular letter to the medical profession produced a further £1,715; and a special article in the medical press £1,455; a total of about £4,134—a sum exceeding the auditors' statement, inasmuch as £286 had been subscribed since September 1st.

THE BELL FUND.

DR. S. A. KINNIER WILSON asks us to acknowledge a donation to the Dr. J. H. Bell Fund of £1 1s. from Dr. H. J. Norman. Subscriptions should be sent to Dr. Wilson at 14, Harley Street, London, W.1.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£ s. d.
Seven lines and under	0 6 0
Each additional line	0 0 9
Whole single column	4 0 0
Whole page	12 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.